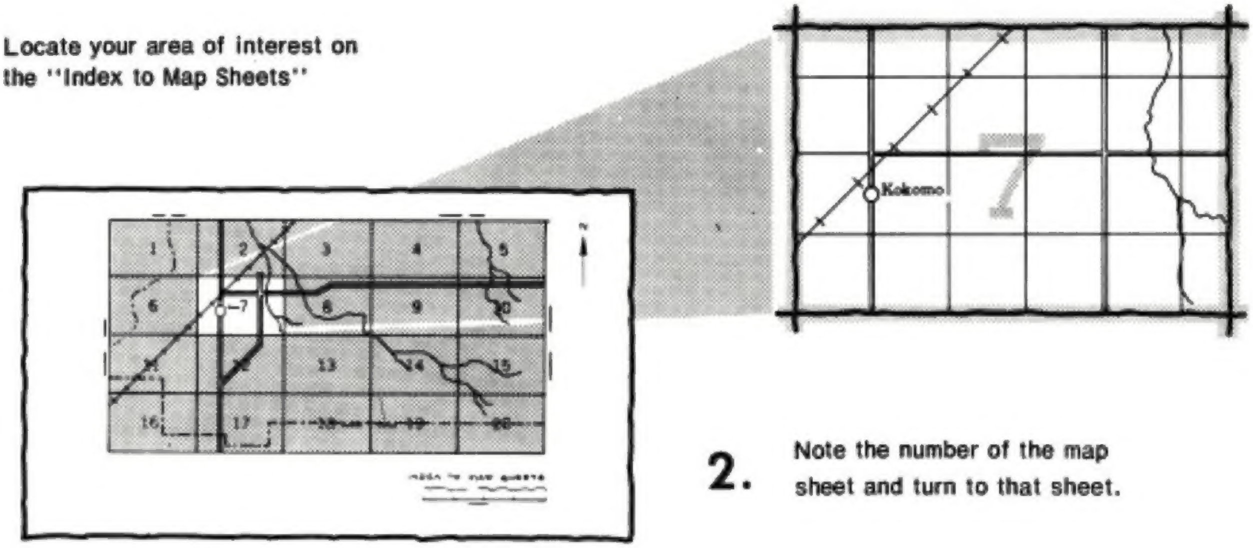
SOIL SURVEY OF

Jefferson County, Mississippi

United States Department of Agriculture
Soil Conservation Service and Forest Service
in cooperation with
Mississippi Agricultural and Forestry Experiment Station

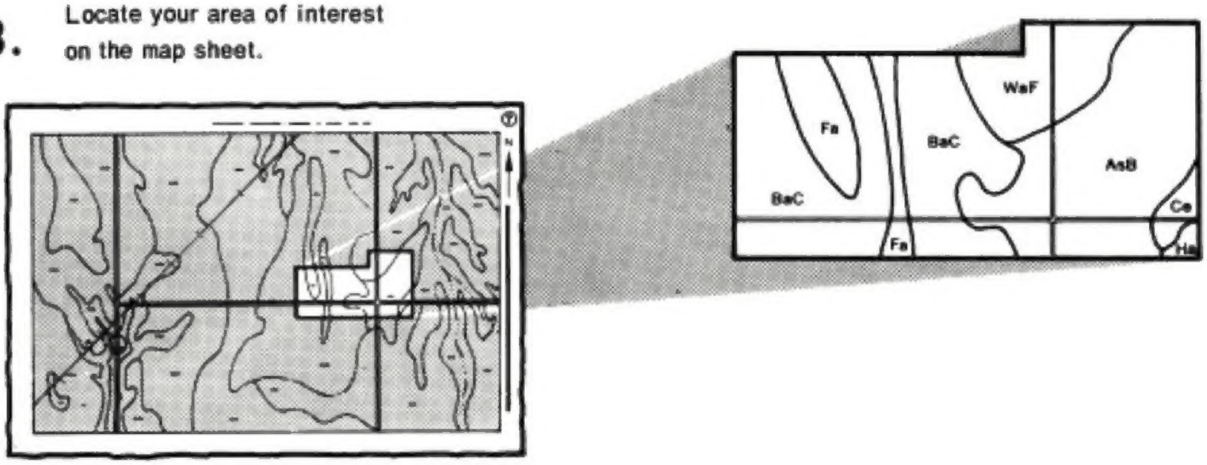
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

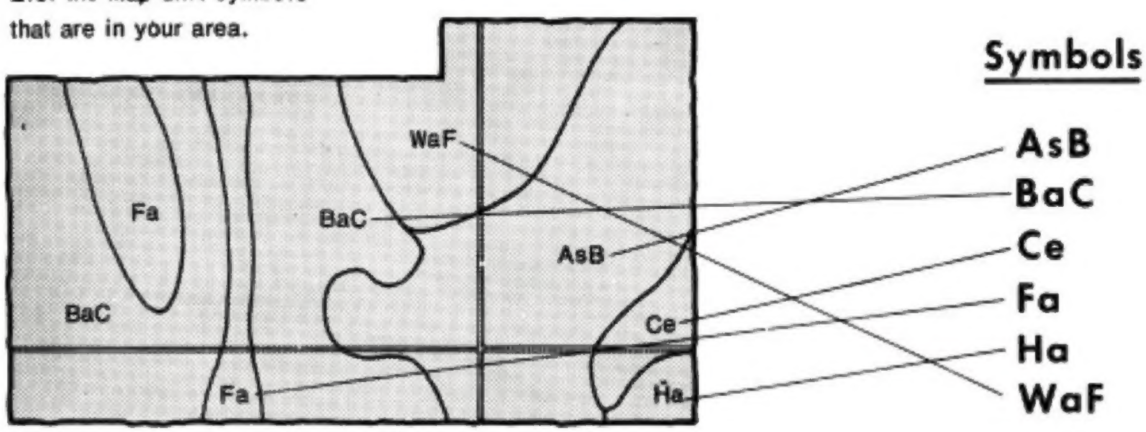


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

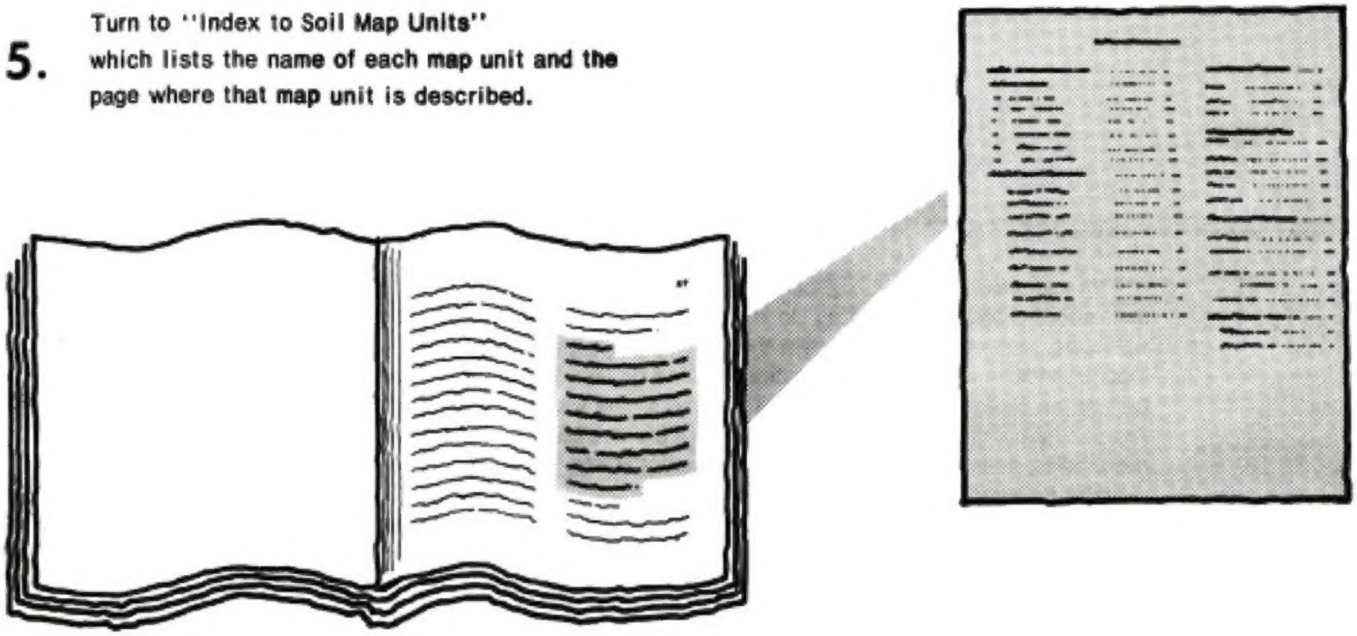


4. List the map unit symbols that are in your area.

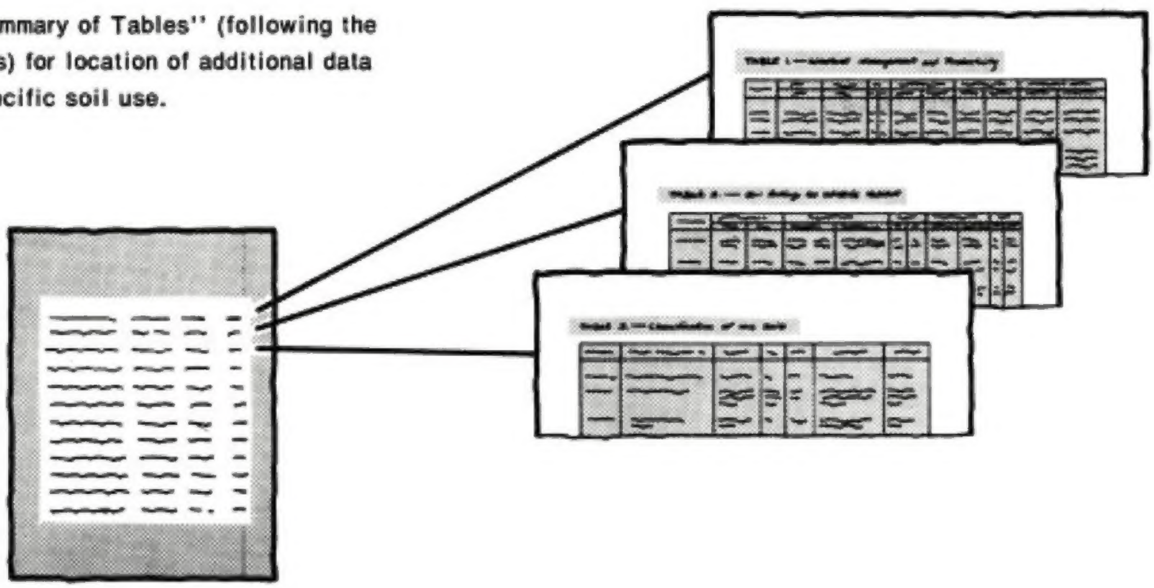


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1968-75. Soil names and descriptions were approved in 1976. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1975. This survey was made cooperatively by the Soil Conservation Service, the Forest Service, and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Jefferson County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

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Issued July 1980

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Foreword

The Soil Survey of Jefferson County, Mississippi contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

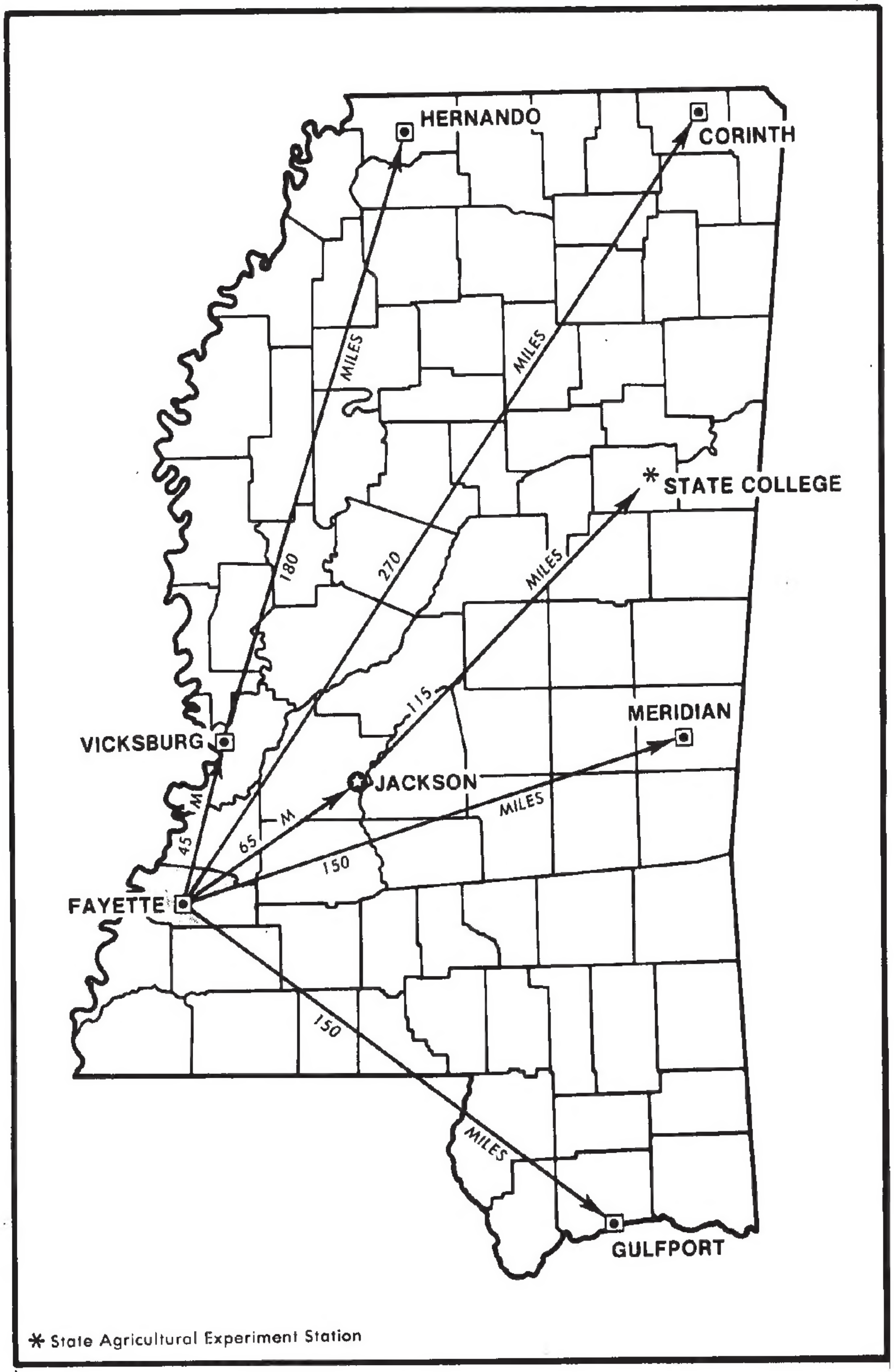
Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

Chester F. Bellard

Chester F. Bellard
State Conservationist
Soil Conservation Service



Location of Jefferson County in Mississippi.

SOIL SURVEY OF JEFFERSON COUNTY, MISSISSIPPI

By William M. Morris, Jr., Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service and Forest Service, in cooperation with Mississippi Agricultural and Forestry Experiment Station

JEFFERSON COUNTY is in the southwestern part of Mississippi (see map on facing page). Fayette, the county seat, has a population of 1,800. The county has a total area of 332,800 acres, or 520 square miles.

The county is mostly in the Southern Mississippi Valley Silty Upland (Loess) Resource Area. A small part is in the Southern Mississippi Valley Alluvium (Delta) Resource Area. The county is bordered on the west by the Mississippi River and by a small part of Louisiana that lies east of the river. It is bordered on the north by Claiborne County, on the east by Copiah and Lincoln Counties, and on the south by Franklin and Adams Counties.

Forest products, beef cattle, and soybeans are the chief sources of farm income in Jefferson County. Many employees of nearby industrial plants are also part-time farmers in the county.

General nature of the county

General information concerning the county is given in the paragraphs that follow. Climate; history and development; physiography, relief, and drainage; and farming are described.

Climate

The climate of Jefferson County is determined mainly by its subtropical latitude, the huge land mass to its north, its proximity to the warm waters of the Gulf of Mexico, and the prevailing southerly winds. Data on temperature and precipitation are given in table 1. The probabilities of occurrence of selected low temperatures in spring and fall are given in table 2.

In summer, southerly winds bring moist, tropical air, and westerly or northerly winds occasionally bring hot, dry weather. Droughts occur if the dry weather lasts long enough. In winter, periods of moist, tropical air and of dry, polar air alternate. These changes sometimes cause rather extreme and sudden shifts in temperature. The temperature drops below freezing every year but generally remains there for only a short time. Ordinarily, snow falls in January once every 4 years, but it remains on the ground for only a short time.

The relative humidity is 60 percent or higher 73 percent of the time and is 40 percent or lower only 8 percent of the time. In winter, when the temperature falls below 50 degrees F, the relative humidity ranges from 50 to 79 percent about 46 percent of the time and from 80 to 100 percent about 44 percent of the time. In summer when the temperature rises to 90 degrees or higher, the relative humidity is no more than 79 percent. Relative humidity ranges from 50 to 79 percent 42 percent of the time in summer.

Moisture is ample throughout the year. Fall is the driest season. Precipitation in winter and spring often comes in the form of prolonged rains, usually because warm air from the Gulf of Mexico overides a mass of cold air near the surface. In summer and early fall, precipitation is in the form of thundershowers. Local droughts can occur because these showers are generally widely scattered and can bypass areas that need rain. Precipitation of at least 0.1 inch occurs on an average of 79 days a year; 9 of these days are in April, which is the wettest month, and 3 are in October, which is the driest. Local flash floods can occur in any month when precipitation is 3 inches or more in 24 hours.

Temperature is 32 degrees or lower on an average of 30 days a year and 90 degrees or higher on 95 days. Temperatures of 20 degrees or lower occur 7 years in 10. The ground freezes occasionally but not to a great depth. Thawing is generally rapid.

Table 2 shows the probability of selected low temperatures on or before given dates in fall and on or after given dates in spring. Temperatures of 36 and 40 degrees are included in the table because frost can occur when the temperature of the air is several degrees above freezing. Because some crops are more tolerant of low temperatures than others, the average length of the growing season between the last occurrence of a given temperature in spring and the first occurrence of that temperature in fall can be useful. In an average year the growing

season between the last occurrence of 24 degrees in spring and the first in fall is 314 days, the 28-degree growing season is 286 days, the 32-degree growing season is 249 days, the 36-degree growing season is 221 days, and the 40-degree growing season is 197 days.

Thunderstorms are frequent, but hailstones as large as 0.75 inch in diameter are uncommon. Tornadoes occur about once in 14 years. Gale-force winds (39 to 74 miles per hour) can be expected once in 21 years.

History and development

The area now known as Jefferson County was part of the Natchez District during the 18th century. It was first called Pickering County, which was established April 2, 1799, by proclamation of the first Territorial Governor of Mississippi. It received its present name, Jefferson County, on January 11, 1802, in honor of President Thomas Jefferson.

Settlement had begun by 1768. Important early settlements included Church Hill, Rodney, Harriston, and Union Church. The original county seat was at Greenville, now extinct. The county seat was moved to its present site at Fayette in 1825. Rodney, incorporated in 1828, until 1864 was an important shipping point on the Mississippi River. Later, with the coming of the railroad, Harriston became an important railroad center.

The 1900 U.S. Census reported Jefferson County to have a population of 21,292; and by 1970, the population had decreased to 9,295.

Physiography, relief, and drainage

Jefferson County is in the southwestern part of the State in an area called the "bluff section." The landscape is undulating, rolling, and hilly and is broken by level strips of bottom land along the rivers and creeks.

Two rivers and six tributary streams drain the county. The Mississippi River flows southward along the western boundary, and the Middle Fork of the Homochitto River flows southward through the southeastern section of the county. Dowd, Coles, Fairchilds, Willis, Clarks, and Hurricane Creeks drain most of the uplands. From each of these streams, many branches finger out in many directions to form a broken pattern of narrow valleys and ridges. In many places the ridgetops are 150 feet higher than the valley floors.

The relief of Jefferson County ranges from nearly level on the flood plains to very steep on the uplands. The highest point in the county, about 500 feet above sea level, is near Union Church in the eastern section of the county. The lowest point is in the Holmes Lake area on the flood plain of the Mississippi River.

Farming

Little is known about early farming in the county. The Indians grew some corn, melons, and beans, but after the county was settled, cotton became the principal crop.

Since 1937, emphasis in farming has steadily changed from cotton to sod crops and the raising of livestock. In recent years the acreage planted to soybeans has steadily increased. Today timber, beef cattle, and soybeans are important sources of farm income.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed in-

formation then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Table 3 shows the extent of the map units shown on the general soil map and gives general ratings of the potential of each, in relation to the other map units, for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each map unit is rated for *cultivated farm crops*, *pasture and hay*, *woodland*, *urban uses*, and *recreation areas*. Cultivated farm crops and pasture and hay crops are those grown extensively by farmers in the survey area. Woodland refers to land that is producing either trees native to the area or introduced species. Urban uses include residential, commercial, and industrial developments. Intensive recreation areas include campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic. Extensive recreation areas include those used for nature study and as wilderness.

Dominantly nearly level, clayey, silty, and loamy soils on flood plains

In this group are dominantly deep, well drained to poorly drained soils that are subject to flooding. These soils are along the Mississippi River in the western part of the county and along the main streams in the central and eastern parts of the county.

1. Sharkey-Bowdre-Tunica

Poorly drained and somewhat poorly drained, clayey soils

This unit is on wide flood plains in the western part of the county. In places the flood plains are more than 2 miles wide. They are subject to frequent overflow in winter and spring.

This unit makes up about 7.6 percent of the county. It is about 60 percent Sharkey soils, 12 percent Bowdre soils, and 7 percent Tunica soils. The remaining 21 percent is mostly Commerce, Convent, and Bruin soils.

Sharkey soils are at lower elevations on wide flats and in depressions. They are poorly drained. Bowdre soils are on low ridges at higher elevations. They are somewhat poorly drained. Tunica soils are in higher positions on wide flats. They are poorly drained.

This unit is used mostly as woodland, and a small acreage is cropland.

The soils of this unit have medium potential for most locally grown row crops, grasses, and legumes. Protection from flooding and surface drainage in the form of row arrangement, field ditches, and outlets are needed to remove excess water from the surface.

Potential is moderately high for hardwood trees. Equipment limitations are severe because of wetness; these limitations can be overcome by harvesting during the drier seasons.

This unit has low potential for most urban uses because of the overflow hazard and high shrink-swell properties of most of the soils. It has high potential for development of wetland wildlife habitat but only medium potential for development of openland and woodland wildlife habitat. Potential for recreational use is low because of wetness and the overflow hazard.

2. Bruin-Robinsonville-Crevasse

Moderately well drained and well drained, loamy soils and excessively drained, sandy soils

This unit is on flood plains in the western part of the county. The soils are subject to frequent overflow, mainly in winter or early spring.

This unit makes up about 3.0 percent of the county. It is about 30 percent Bruin soils, 20 percent Robinsonville soils, and 17 percent Crevasse soils. The remaining 33 percent is mostly Bruno, Morganfield, and Commerce soils.

Bruin soils are mainly at lower elevations furthest from the stream channels. They are moderately well drained. Robinsonville soils are generally on the higher natural levees of the Mississippi River and old river runs. They are well drained. Crevasse soils are at higher elevations along old river runs and on sandbars of the Mississippi River. They are excessively drained.

This unit is used mostly as woodland, and a small acreage is in row crops and pasture.

Bruin and Robinsonville soils have medium potential for most locally grown row crops, grasses, and legumes, and Crevasse soils have low potential for most locally grown row crops. Surface drainage in the form of row arrangement and field ditches is needed to remove excess water from the surface. Frequent overflow causes moderate to severe damage to crops.

Potential is very high as woodland. Equipment limitations are moderate because of frequent overflow; these limitations can be overcome by harvesting during the drier seasons.

This unit has low potential for most urban uses because of the frequent overflow. It has high potential for development of woodland wildlife habitat but poor potential for development of openland and wetland wildlife habitat. Potential for recreational use is low because of the overflow hazard.

3. Morganfield-Adler-Convent

Well drained to somewhat poorly drained, silty soils

This unit is on flood plains adjacent to bluffs and on the lower part of Coles Creek in the western part of the county. The flood plains are about 1 mile wide. They are subject to occasional overflow, mainly in winter or early spring.

This unit makes up about 4.7 percent of the county. It is about 37 percent Morganfield soils, 26 percent Adler soils, and 21 percent Convent soils. The remaining 16 percent is mostly Bruno, Bruin, and Leverett soils.

Morganfield soils are at higher elevations and along stream channels. They are well drained. Adler soils are on broad flats at lower elevations. They are moderately well drained. Convent soils are in the lowest positions on these flood plains. They are somewhat poorly drained.

This unit is used mainly for row crops, and a small acreage is pasture and woodland.

The soils of this unit have medium potential for most locally grown row crops, grasses, and legumes. Surface drainage in the form of row arrangement, field ditches, and outlets is needed to remove excess water from the surface. Occasional overflow causes slight to moderate damage to crops.

Potential is very high as woodland, but the soil has equipment limitations caused by wetness. These limitations can be overcome by harvesting during the drier seasons.

This unit has low potential for most urban uses because of the hazard of overflow. The unit has high potential for development of openland and woodland wildlife habitat but low potential for development of wetland wildlife habitat. Potential for most recreational uses is low. Recreational activities that center around drier seasons or that require facilities less subject to damage from overflow are feasible.

4. Falaya-Collins-Deerford

Somewhat poorly drained and moderately well drained, silty soils

This unit is on flood plains of the South Fork and North Fork Coles Creek, Clarks Creek, and Middle Fork Homochitto River. The flood plains are about one-half mile wide in most places. They are subject to occasional overflow, mainly in winter and early spring.

This unit makes up about 7.4 percent of the county. It is about 36 percent Falaya soils, 26 percent Collins soils, and 21 percent Deerford soils. The remaining 17 percent is mostly Rosebloom, Leverett, and Memphis soils.

Falaya soils are on wide flats at lower elevations of the flood plains. They are somewhat poorly drained. Collins soils are on higher, more recent natural levees along stream channels. They are moderately well drained. Deerford soils are on broad terraces. They are somewhat poorly drained.

This unit is used mostly for pasture and row crops, and a small acreage is woodland.

The soils of this unit have medium potential for most locally grown row crops, grasses, and legumes. Surface drainage in the form of row arrangement, field ditches, and outlets is needed to remove excess water from the surface. Occasional overflow causes slight to moderate damage to crops.

Potential is very high as woodland. Equipment limitations are severe because of wetness. These limitations can be overcome by harvesting during the drier seasons.

This unit has low potential for most urban uses because of the hazard of overflow. It has high potential for development of openland and woodland wildlife habitat but only medium potential for development of wetland wildlife habitat. Potential for recreational use is low. Recreational activities that center around drier seasons or that require facilities less subject to damage by wetness or occasional overflow are feasible.

Dominantly sloping to steep, silty, clayey, and loamy soils on uplands

In this group are dominantly deep, well drained and moderately well drained soils. These soils are in all parts of the county except the area of nearly level soils adjacent to the Mississippi River in the western part of the county.

5. Memphis-Natchez

Well drained, sloping to steep, silty soils

This unit consists of sloping to steep soils on uplands in the western part of the county. The landscape is steep and hilly; it is made up of many narrow ridgetops less than one-eighth mile wide and steep side slopes dissected in many places by short drainageways. Narrow flood plains extend into the unit.

This unit makes up about 32.4 percent of the county. It is about 72 percent Memphis soils and 20 percent Natchez soils. The remaining 8 percent is Loring, Morganfield, and Adler soils.

In most places Memphis soils are strongly sloping and are on ridgetops and side slopes, and in some places they are steep and are on the upper parts of side slopes. They are well drained. Natchez soils are steep and are on the lower parts of side slopes in most places. They are well drained.

Most of this unit is woodland, but where slopes are favorable a large acreage is pasture and cropland.

In less sloping areas this unit has low potential for most locally grown row crops and medium potential for grasses and legumes. Steepness of slope and erosion hazard are the main limitations.

Potential is very high as woodland (fig. 1). There are no significant limitations to woodland use or management except on the Natchez soil, which has moderate equipment limitations.

Parts of the unit have high or medium potential for urban uses, but because of steepness of slopes, some of it has low potential. This unit has high potential for development of woodland wildlife habitat, medium potential for development of openland wildlife habitat where the soils are gently sloping and strongly sloping and low potential where the soils are steep, and low potential for development of wetland wildlife habitat. Most of the unit has low potential for recreational development because of steepness of slope; in places, however, the unit has medium or high potential.

6. Memphis-Loring-Providence

Well drained, steep, silty soils and moderately well drained, gently sloping, silty soils that have a fragipan

This unit makes up about 11 percent of the county. It is about 50 percent Memphis soils, 20 percent Loring soils, and 11 percent Providence soils. The remaining 19 percent is Leverett soils and various well drained and moderately well drained soils on flood plains.

Memphis soils are mostly on steeper slopes and some ridgetops. They are well drained. Loring soils are on gentle side slopes and on ridgetops. They are moderately well drained and have a fragipan. Providence soils are mostly on ridgetops. They are moderately well drained and have a fragipan.

This unit is mostly in pasture and cropland, and a small acreage is woodland.

The soils in this unit have medium potential for most locally grown row crops, grasses, and legumes. Steepness and erosion hazard are the main limitations.

Potential is very high as woodland. There are no significant limitations to woodland use or management.

This unit has medium potential for urban uses because of steepness of slope and undesirable soil characteristics. This unit has high potential for development of openland and woodland wildlife habitat and low potential for development of wetland wildlife habitat. This unit has medium potential for recreational development.

7. Lorman-Loring

Moderately well drained, hilly, clayey soils and moderately well drained, hilly, silty soils that have a fragipan

This unit is in the northeastern part of the county. The topography is hilly; it is made up of narrow ridgetops and steep side slopes dissected by many short drainageways. Flood plains are narrow.

This unit makes up about 11.8 percent of the county. It is about 47 percent Lorman soils and 25 percent Loring soils. The remaining 28 percent is Smithdale, Providence, Memphis, and Lexington soils, and various moderately well drained and somewhat poorly drained soils on flood plains.

Lorman soils are on steeper side slopes. They are moderately well drained and have a clayey subsoil. Loring soils are mainly on ridgetops. They are moderately well drained and have a fragipan.

This unit is almost entirely woodland.

Except for a few small areas on the wider ridgetops and flood plains, it has low potential as cropland and medium potential as pasture.

Potential is moderately high as woodland. There are no significant limitations to woodland use or management except on Lorman soils, which have moderate equipment limitations.

This unit has low potential for urban uses because of steepness of slopes and the high shrink-swell properties of the Lorman soils. It has high potential for development of woodland wildlife habitat, medium potential for development of openland wildlife habitat, and low potential for development of wetland wildlife habitat. Most of the unit has low potential for recreational development mostly because of slope; in places, however, the unit has medium or high potential.

8. Smithdale-Lexington

Well drained, hilly, loamy and silty soils

This unit is in the southeastern part of the county. The topography is hilly; it is made up of narrow ridgetops and steep side slopes dissected in many places by short drainageways. Narrow flood plains extend into the unit.

This unit makes up about 14.8 percent of the county. It is about 43 percent Smithdale soils and 29 percent Lexington soils. The remaining 28 percent is mostly Providence, Loring, and Memphis soils; various well drained, loamy soils on uplands; and Collins soils on flood plains.

Smithdale soils are on side slopes. They are well drained and loamy. Lexington soils are on ridgetops and the upper parts of side slopes. They are well drained and silty.

Most of the unit is woodland, and a small acreage is pasture and cropland.

This unit has low potential for most locally grown row crops and medium potential for grasses and legumes. Steepness of slope and erosion hazard are the main limitations.

Potential is high as woodland. There are no significant limitations affecting woodland use and management.

In most places, this unit has low potential for most urban uses because of steepness of slope. In places where slopes are gentle, however, potential is high. The unit has high potential for development of woodland wildlife habitat, medium potential for development of openland wildlife habitat, and low potential for development of wetland wildlife habitat. Most of the unit has low potential for recreational development because of steepness of slopes. In places, however, the unit has medium or high potential.

9. Memphis-Morganfield

Well drained, sloping to steep, silty soils on uplands and well drained, nearly level, silty soils on flood plains

This unit consists of dominantly sloping to steep soils on uplands in the central part of the county. The landscape is steep and hilly; it is made up of many narrow ridgetops and drainageways.

This unit makes up about 7.3 percent of the county. It is about 77 percent Memphis soils and 14 percent Morganfield soils. The remaining 9 percent is Loring, Lexington, Adler, and Falaya soils.

Memphis soils are on ridgetops and side slopes. They are well drained. Morganfield soils are on narrow flood plains. They are well drained.

Most of the unit is woodland, but where slopes are favorable a large acreage is pasture and cropland.

In less sloping areas this unit has low potential for most locally grown row crops and medium potential for grasses and legumes. Steepness of slope and erosion hazard are the main limitations.

Potential is very high as woodland. There are no significant limitations to woodland use or management.

Parts of the unit have high or medium potential for urban uses, but because of steepness of slopes or flooding hazard, most of it has low potential. This unit has high potential for development of woodland wildlife habitat, medium potential for development of openland wildlife habitat where the soils are gently sloping and strongly sloping and low potential where the soils are steep, and low potential for development of wetland wildlife habitat. Most of the unit has low potential for recreational development because of steepness of slope; in places, however, the unit has medium or high potential.

Broad land use considerations

About 10 percent of the land in the county is used for cultivated crops, dominantly soybeans, corn, and cotton. This cropland is interspersed over the county, but it is concentrated largely in the four map units that have high potential for row crops. These are units 2, 3, 4, and 6 on the general soil map at the back of the publication. Map units 2, 3, and 4 are flooded occasionally, mostly in winter and spring. Flooding causes slight to moderate crop damage and is the main limitation in growing crops. The most extensive soils of these units are Bruin, Falaya, and Morganfield soils on flood plains and Memphis soils on uplands. Erosion is the main limitation in growing crops in unit 6. Memphis, Loring, and Providence soils are the main soils used for crops in unit 6.

About 15 percent of the land in the county is pasture. Map units 1, 2, 3, 4, and 6 have high potential for grasses and legumes. The most extensive soils of these units are Bruin, Falaya, Morganfield, and Sharkey soils on flood plains and Memphis soils on uplands.

About 73 percent of the land in the county is woodland. Map units 2, 3, 4, 5, 6, and 9 have very high potential, map unit 1 has high potential, and map units 7 and 8 have moderately high potential for trees. Some of the soils have moderate or severe equipment limitations that can be overcome by harvesting during the drier seasons or by using special equipment.

About 5,700 acres in the county are classified as urban, or built-up, areas. In general, areas of gently sloping to strongly sloping Memphis, Loring, and Providence soils have medium potential for urban use. These soils are most extensive in unit 6. Low strength, wetness, and steep slopes are the main limitations of these soils to urban development. Loring and Providence soils have slow permeability, which is a limitation to septic tank absorption fields. Most of these limitations can be overcome by proper design and careful installation procedures. Soils on flood plains in units 2, 3, and 4 have low potential for urban development because of flooding. Unit 1 has low potential because of high shrink-swell properties and flooding. Hilly areas of Memphis and Smithdale soils have low potential because of steep slopes; the low strength of Memphis soils is also a limitation. Lorman soils have low potential because of slope and high shrink-swell properties. Sites that are suitable for houses or small commercial buildings, however, can be selected in areas of these soils.

Potential for recreational development ranges from low to high depending on the intensity of expected use. Unit 6 has medium potential for intensive recreational development. Units 1, 2, 3, and 4 have low potential because of flooding. Units 5, 7, 8, and 9 are hilly, and steep slopes limit their potential for intensive recreational development. All of these units, however, are suitable for uses such as hiking or horseback riding, and small areas suitable for intensive development can be selected in units that have low potential. Potentials for wildlife are discussed in the section "Wildlife habitat."

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have a profile that is almost alike make up a *soil series*. Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Memphis silt loam, 2 to 5 percent slopes, eroded, is one of several phases within the Memphis series.

Some map units are made up of two or more dominant kinds of soil. In this survey such map units are called soil complexes and soil associations.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Smithdale-Lexington complex, 15 to 30 percent slopes, is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Sharkey association is an example.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Pits is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 4, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

Ad—Adler silt loam. This moderately well drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 8 inches thick. This is underlain to a depth of 29 inches by dark brown and brown silt loam and to a depth of 50 inches by silt loam that is mottled in shades of brown and gray and by grayish brown silt loam.

This soil is medium acid to mildly alkaline. Permeability is moderate. Available water capacity is very high. Runoff is slow, and the erosion hazard is slight. The soil can be tilled over a wide range of moisture conditions. Occasional overflow in winter and spring can cause slight to moderate crop damage.

Included with this soil in mapping are a few small areas of Morganfield and Convent soils.

Most of this soil is used as cropland and pasture. The remaining acreage is in woodland.

This soil has high potential for most locally grown row crops, small grain, grasses, and legumes. Row arrangement and field ditches are needed to remove excess surface water. Return of crop residues to the soil helps maintain organic matter content and improve soil tilth.

Potential is very high for green ash, eastern cottonwood, water oak, willow oak, sweetgum, and American sycamore. There are no significant limitations to woodland use and management.

This soil has low potential for urban use because of the flood hazard. Capability unit IIw-1, woodland suitability group 1o4.

Bd—Bowdre silty clay. This somewhat poorly drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is very dark grayish brown silty clay about 8 inches thick. The subsoil is very dark grayish brown clay that extends to a depth of 15 inches. This is underlain to a depth of 50 inches by silt loam that is brown or that is mottled in shades of brown and gray.

This soil is slightly acid to mildly alkaline. Permeability is slow in the upper 15 inches and moderate below. Available water capacity is medium. Runoff is slow, and the erosion hazard is slight. The soil has poor tilth and can be worked over only a narrow range of moisture conditions.

Included with this soil in mapping are small areas of Tunica and Commerce soils.

Most of this soil is used as cropland. A very small acreage is pasture and woodland.

This soil has medium potential for most row crops, small grain, grasses, and legumes, but high yields can be obtained. Potential is limited because of flooding once or twice each year in winter and spring. Where the soil is protected from flooding, soybeans produce high yields in most years. Good conservation practices include return of crop residue to the soil to improve tilth and to maintain the level of organic matter. Row arrangement and surface field ditches are needed to remove excess water from the surface.

Potential is high for cherrybark oak, eastern cottonwood, sweetgum, and water oak. Equipment limitations caused by wetness and flooding are severe. These limitations can be overcome by harvesting in drier seasons and by using special equipment.

This soil has low potential for urban uses. The main limitations are flooding, wetness, and high shrink-swell properties. Capability unit IVw-2, woodland suitability group 2w6.

Bn—Bruin silt loam. This moderately well drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 7 inches thick over dark brown very fine sandy loam about 4 inches thick. The subsoil extends to a depth of about 27 inches; it is dark brown silt loam that has dark grayish brown mottles below a depth of 16 inches. This is underlain to a depth of about 55 inches by dark brown and brown very fine sandy loam and silt loam mottled in shades of brown and gray.

This soil is slightly acid to mildly alkaline. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. The soil has good tilth and can be worked throughout a relatively wide range of moisture conditions.

Included with this soil in mapping are small areas of Commerce, Convent, and Robinsonville soils.

This soil has medium potential for most locally grown row crops, small grain, grasses, and legumes, but high yields can be obtained. Potential is limited because of flooding during winter and spring. Where the soil is protected from flooding, soybeans are well suited and produce high yields in most years. Good tilth is easily maintained by returning crop residue to the soil. Row arrangement and field ditches are needed to remove excess water from the surface.

Potential is very high for green ash, eastern cottonwood, pecan, sweetgum, and American sycamore. There are no significant limitations affecting woodland use or management, but harvesting during winter and spring can be delayed by flooding. This limitation can be overcome by harvesting during drier seasons.

This soil has low potential for urban use because of the flood hazard. Capability unit IVw-3, woodland suitability group 1o4.

BR—Bruin-Robinsonville association. This unit consists of moderately well drained and well drained, nearly level soils on broad flood plains. It is on the natural levees of rivers and old river runs. Slopes are 0 to 2 percent.

Bruin soils are on the lower parts of natural levees sloping away from stream channels. Robinsonville soils are at higher elevations next to stream channels. Mapped areas are mostly long and about one-half mile wide. Areas are 300 to 1,000 acres.

The moderately well drained Bruin soils make up about 48 percent of the unit. Typically, the surface layer is dark grayish brown silt loam about 7 inches thick. The subsoil extends to a depth of about 27 inches; it is dark brown silt loam that has dark grayish brown mottles below a depth of 16 inches. This is underlain to a depth of about 55 inches by dark brown and brown very fine sandy loam and silt loam mottled in shades of brown and gray.

Bruin soils are slightly acid to mildly alkaline. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is slight.

The well drained Robinsonville soils make up about 37 percent of the unit. Typically, the surface layer is dark grayish brown very fine sandy loam about 8 inches thick. This is underlain to a depth of 60 inches by brown and dark brown fine sandy loam, silt loam, and very fine sandy loam.

Robinsonville soils are mildly alkaline to moderately alkaline. Permeability is moderate to moderately rapid. Available water capacity is low. Runoff is slow, and the erosion hazard is slight.

Included with these soils in mapping are a few small areas of excessively drained Bruno and Crevasse soils at higher elevations next to stream channels. Also included are a few small areas of the somewhat poorly drained Commerce and Convent soils in the low areas of the association.

Most of this unit is used as woodland. A small acreage is pasture.

This unit has low potential for row crops, small grain, grasses, and legumes. Potential is limited because of flooding several times each year.

Potential is very high as woodland. Green ash, eastern cottonwood, sweetgum, and American sycamore are better suited than most other species. There are no significant limitations affecting woodland use or management, but harvesting during winter and spring can be delayed by flooding. This limitation can be offset by harvesting during drier seasons.

This unit has low potential for urban use because of the flooding. Bruin soils in capability unit Vw-2, woodland

suitability group 1o4; Robinsonville soils in capability unit Vw-2, woodland suitability group 1w5.

Bu—Bruno sandy loam. This excessively drained, nearly level and gently undulating soil is on flood plains. Slopes are 0 to 3 percent.

Typically, the surface layer is yellowish brown sandy loam about 8 inches thick. This is underlain to a depth of 60 inches by pale brown loamy sand and brown sandy loam, loamy fine sand, and sand.

This soil is medium acid to neutral. Permeability is rapid. Available water capacity is low. Runoff is slow, and the erosion hazard is slight. The soil has good tilth and can be worked throughout a wide range of moisture conditions. This soil is flooded several times each year.

Included with this soil in mapping are small areas of Robinsonville and Crevasse soils.

Most of this soil is used as woodland. A small acreage is pasture.

This soil has low potential for row crops, small grain, grasses, and legumes. Potential is limited because the soil is flooded several times each year and the excessive drainage causes it to be too droughty for most row crops.

Potential is high for cherrybark oak, water oak, sweetgum, and willow oak. Limitations caused by flooding several times during the year are moderate. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

The soil has low potential for urban uses because of the flooding. Capability unit Vw-1, woodland suitability group 2s5.

Ca—Collins silt loam. This moderately well drained soil is on flood plains in the eastern part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark yellowish brown silt loam about 5 inches thick. This is underlain to a depth of 20 inches by dark yellowish brown silt loam that has pale brown, dark brown, and grayish brown mottles; to a depth of 40 inches by silt loam mottled in shades of brown and gray; and to a depth of 55 inches by light brownish gray silt loam.

This soil is strongly acid to very strongly acid in all horizons except for the surface layer in limed areas. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. The soil has good tilth and can be worked throughout a relatively wide range of moisture conditions. This soil is flooded several times each year.

Included with this soil in mapping are small areas of Falaya and Leverett soils.

Most of this soil is used as woodland, and a small acreage is pasture and cropland.

This soil has low potential for most row crops, small grain, grasses, and legumes, but high yields can be obtained if flooding is controlled. Potential is limited because of the flooding several times each year. If row crops are grown, good conservation practices include return of crop residue to help maintain organic matter content and improve soil tilth. Row arrangement and field ditches are needed to remove excess water from the surface.

Potential is very high for Shumard oak, sweetgum, yellow-poplar, and loblolly pine. The soil has moderate equipment limitations because of wetness and flooding. These limitations can be overcome by harvesting during the drier seasons.

This soil has low potential for urban use because of the flood hazard. Capability unit IVw-1, woodland suitability group 1w8.

Cm—Commerce silt loam. This somewhat poorly drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 9 inches thick. The subsoil extends to a depth of 31 inches; it is dark grayish brown silty clay loam that is mottled in shades of gray and brown. This is underlain to a depth of 46 inches by grayish brown silt loam that has brownish mottles and to a depth of 65 inches by dark yellowish brown very fine sandy loam that has grayish mottles.

This soil is neutral to moderately alkaline. Permeability is moderately slow. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. The soil has good tilth and can be worked throughout a moderate range of moisture conditions. This soil is flooded during winter and spring.

Included with this soil in mapping are small areas of Bruin and Convent soils.

Most of the soil is used for row crops, and a small acreage is woodland.

This soil has low potential for most row crops, small grain, grasses, and legumes, but high yields can be obtained. Potential is limited because of the flooding during winter and spring. Soybeans produce high yields in most years if the soil is protected from flooding. Suitable conservation practices include minimum tillage and return of crop residue to help maintain organic matter and improve tilth. Row arrangement and surface field ditches are needed to remove excess water from the surface.

Potential is very high for green ash, eastern cottonwood (fig. 2), Nuttall oak, and water oak. Equipment limitations caused by wetness and flooding are moderate. These limitations can be overcome by using special equipment and by harvesting during drier seasons.

This soil has low potential for urban use. The main limitations are wetness and flooding. Capability unit IVw-3, woodland suitability group 1w5.

Co—Convent silt loam. This somewhat poorly drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 7 inches thick. This is underlain to a depth of 50 inches by grayish brown, stratified silt loam that has brownish mottles.

The soil is slightly acid to moderately alkaline in all horizons. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is

slight. The soil has good tilth and can be worked throughout a relatively wide range of moisture conditions. This soil is flooded during winter and spring.

Included with this soil in mapping are small areas of Adler, Bruin, and Commerce soils.

A large acreage of this soil is woodland, and the rest is pasture and cropland.

This soil has low potential for most row crops, small grain, grasses, and legumes, but high yields can be obtained. Potential is limited because of the flooding in winter and spring. Soybeans produce high yields in most years if flooding is controlled. Suitable conservation practices include return of crop residue to the soil to improve tilth and maintain organic matter content. Row arrangement and surface field ditches are needed to remove excess water from the surface.

Potential is very high for green ash, eastern cottonwood, sweetgum, American sycamore, and Nuttall oak. Equipment limitations caused by wetness and flooding are moderate. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

The soil has low potential for urban use. Low strength, wetness, and flooding are the main limitations. Capability unit IVw-3, woodland suitability group 1w5.

Cv—Crevasse sand. This excessively drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 3 percent.

Typically, the surface layer is dark grayish brown sand about 3 inches thick. This is underlain to a depth of 17 inches by grayish brown sand and to a depth of about 60 inches by dark grayish brown sand.

The soil is medium acid to moderately alkaline. Permeability is rapid. Available water capacity is low. Runoff is slow, and the erosion hazard is slight. These soils are droughty; fertilizers are leached readily, and several applications are needed for crops. This soil is flooded several times each year.

Included with this soil in mapping are small areas of Robinsonville and Bruno soils.

A large acreage of this soil is on open sand bars that are sparsely vegetated and used for pasture in places. A small acreage is woodland.

This soil has low potential for locally grown row crops, grasses, and legumes because of flooding several times each year and because of the droughty condition of the soil.

Potential is high for sweetgum, white oak, and eastern cottonwood. Equipment limitations caused by flooding and soil texture are moderate. These limitations can be overcome by using special equipment and by harvesting during the dry seasons.

This soil has low potential for urban uses. The major limitation is flooding. Capability unit Vw-1, woodland suitability group 2s9.

De—Deerford silt. This somewhat poorly drained soil is generally on broad terraces of low relief. Slopes are 0 to 2 percent.

Typically, the surface layer is brown silt about 5 inches thick. The subsurface layer extends to a depth of 23 inches; it is light gray silt and silt loam that has yellowish brown mottles. The subsoil to a depth of 42 inches is mottled gray and brown silt loam and to a depth of 67 inches is gray silt loam that has yellowish brown mottles.

This soil is slightly acid through very strongly acid in the surface and subsurface layers and in the upper part of the subsoil. It is neutral to mildly alkaline in the lower part of the subsoil. Permeability is slow. Available water capacity is high. Runoff is slow. The soil has a subhorizon containing excessive sodium between depths of 16 and 32 inches. A perched water table is at a depth of 6 to 18 inches during winter and early spring. The soil has good tilth and can be worked throughout a relatively wide range of moisture conditions.

Included with this soil in mapping are small areas of Leverett, Rosebloom, and Falaya soils.

The soil is used for pasture, row crops, and woodland.

This soil has medium potential for most locally grown row crops, grasses, and legumes. Conservation practices such as return of crop residue to the soil help maintain organic matter content and improve soil tilth. Row arrangement and surface field ditches are needed to remove excess water from the surface.

Potential is moderately high for sweetgum, water oak, and loblolly pine. Equipment limitations caused by wetness are moderate. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

This soil has medium potential for most urban uses. Wetness and low strength are the main limitations. Proper design and careful installation procedures help overcome these limitations. Capability unit IIIw-1, woodland suitability group 3w8.

Fa—Falaya silt. This somewhat poorly drained soil is on broad flood plains. Slopes are 0 to 2 percent.

Typically, the surface layer is dark brown silt about 6 inches thick. This is underlain to a depth of 14 inches by brown silt that has grayish mottles, to a depth of 48 inches by light brownish gray and light gray silt and silt loam that have brownish mottles, and to a depth of 60 inches by yellowish brown silt loam that has grayish mottles.

This soil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. The soil has a seasonal high water table at a depth of 12 to 24 inches. Occasional overflow causes slight to moderate crop damage.

Included with this soil in mapping are small areas of Deerford, Leverett, and Rosebloom soils.

The soil is used for row crops, pasture, and woodland.

This soil has high potential for most locally grown row crops, grasses, and legumes. Row arrangement and surface field ditches are needed to remove excess surface water. Return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is very high for eastern cottonwood, cherrybark oak, Nuttall oak, water oak, loblolly pine, and slash pine. Equipment limitations caused by wetness and occasional flooding are moderate. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

This soil has low potential for urban uses because of wetness and the flood hazard. Capability unit IIw-2, woodland suitability group 1w8.

LeA—Leverett silt, 0 to 2 percent slopes. This well drained soil is on broad terraces of low relief.

Typically, the surface layer is dark grayish brown silt about 7 inches thick. The subsoil to a depth of 32 inches is dark brown and dark yellowish brown silt loam and to a depth of about 70 inches is silt loam mottled in shades of brown and gray.

This soil is medium acid through very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. Seedbed preparation and tillage are sometimes a concern because of crusting and packing.

Included with this soil in mapping are small areas of Memphis, Deerford, and Collins soils.

This soil is used for row crops, pasture, and woodland.

This soil has high potential for most locally grown row crops, grasses, and legumes. Conservation practices such as row arrangement and return of crop residue to the soil help maintain organic matter content and improve soil tilth.

Potential is high for cherrybark oak, sweetgum, yellow-poplar, and loblolly pine. There are no significant limitations in woodland use or management.

This soil has medium potential for urban uses. Low strength and wetness are the main limitations. Capability unit I-1, woodland suitability group 2o7.

LoB2—Loring silt loam, 2 to 5 percent slopes, eroded. This moderately well drained soil is on ridgetops on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of 27 inches is dark brown silty clay loam and silt loam and to a depth of 60 inches is firm, compacted, dark brown silt loam that has grayish and brownish mottles.

This soil is medium acid through very strongly acid. Permeability is moderate in the upper part of the soil and moderately slow in the fragipan. Available water capacity is medium. Runoff is medium, and the erosion hazard is moderate. A perched water table is above the fragipan in winter and early spring. Seedbed preparation and tillage are concerns because of crusting and packing of the silty soil. The surface layer has been thinned by erosion, and in some places rills have formed and exposed the subsoil.

Included with this soil in mapping are small areas of Leverett, Memphis, and Providence soils.

Most of this soil is used as pasture (fig. 3) and woodland, and the remaining acreage is cropland.

This soil has high potential for most locally grown row crops, grasses, and legumes. Return of crop residue to the soil helps maintain organic matter and improve soil tilth. Other conservation practices such as crop rotation, contour farming, terraces, minimum tillage, and vegetated waterways help control erosion.

Potential is high for cherrybark oak, water oak, sweetgum, shortleaf pine, and loblolly pine. There are no significant limitations in woodland use or management.

This soil has medium potential for urban uses. Low strength is the main limitation. Proper design and careful installation procedures help offset this limitation. The seasonal high water table is a severe limitation for septic tank absorption fields. Capability unit IIe-1, woodland suitability group 2o7.

LoC2—Loring silt loam, 5 to 8 percent slopes, eroded. This moderately well drained, sloping soil is on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of 27 inches is dark brown silty clay loam and silt loam and to a depth of 60 inches is firm, compacted, dark brown silt loam that has grayish and brownish mottles.

This soil is medium acid through very strongly acid. Permeability is moderate in the upper part of the soil and moderately slow in the fragipan. Available water capacity is medium. Runoff is medium, and the erosion hazard is moderate. A perched water table is above the fragipan in winter and early spring. Seedbed preparation and tillage are concerns because of crusting and packing of the silty soil. The surface layer has been thinned by erosion, and in some places rills and a few shallow gullies have formed and exposed the subsoil.

Included with this soil in mapping are small areas of Lorman, Memphis, and Providence soils. Also included are a few small areas of severely eroded Loring soils that have rills and a few deep gullies.

Most of this soil is used as pasture and woodland, and the remaining acreage is cropland.

This soil has medium potential for most locally grown row crops and high potential for grasses and legumes. The erosion hazard is greater when cultivated row crops are grown, but erosion can be controlled by using an adequate cropping system, grassed waterways, contour farming, minimum tillage, and terraces. The return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is high for cherrybark oak, water oak, sweetgum, shortleaf pine, and loblolly pine. There are no significant limitations in woodland use or management.

This soil has medium potential for urban uses. Low strength is the major limitation. Proper design and careful installation procedures help offset this limitation. The seasonal high water table is a severe limitation for septic tank absorption fields. Capability unit IIIe-1, woodland suitability group 2o7.

LoD2—Loring silt loam, 8 to 12 percent slopes, eroded. This moderately well drained, strongly sloping soil is on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of 27 inches is dark brown silty clay loam and silt loam and to a depth of 60 inches is firm, compacted, dark brown silt loam that has grayish and brownish mottles.

This soil is medium acid through very strongly acid. Permeability is moderate in the upper part of the soil and moderately slow in the fragipan. Available water capacity is medium. Runoff is rapid, and the erosion hazard is severe. Because of the rapid runoff, available moisture for plant use is limited in some areas. The surface layer has been thinned by erosion, and in some places rills and a few shallow gullies have formed and exposed the subsoil.

Included with this soil in mapping are small areas of Lorman, Memphis, and Providence soils. Also included are a few small areas of severely eroded Loring soils that have rills and a few deep gullies.

Most of this soil is used as pasture and woodland, and a small acreage is cropland.

This soil has low potential for row crops because of steepness of slopes and the severe erosion hazard. A permanent plant cover reduces erosion. The soil has medium potential for grasses and legumes. Recommended management practices include proper stocking, controlled grazing, and weed control.

Potential is high for cherrybark oak, water oak, sweetgum, shortleaf pine, and loblolly pine. There are no significant limitations in woodland use or management.

This soil has medium potential for urban uses. Low strength and slope are the main limitations. Proper design and careful installation procedures help offset these limitations. The seasonal high water table is a severe limitation for septic tank absorption fields. Capability unit IVe-2, woodland suitability group 2o7.

LR—Lorman-Loring association, hilly. This unit consists of moderately well drained, hilly soils on rough uplands in the northeastern part of the county. The rough, wooded areas range in size from 400 to 2,000 acres. The steep Lorman soils are on side slopes, and Loring soils are on ridgetops. The composition of this map unit is more variable than that of most of the others in the county, but mapping has been controlled well enough for the expected use of the soils. Slopes are 12 to 45 percent.

The moderately well drained Lorman soils make up about 57 percent of the unit. Typically, the surface layer is dark grayish brown silt loam over brown silt loam about 5 inches thick. The subsoil to a depth of 25 inches is yellowish red and yellowish brown clay that has grayish, brownish, and reddish mottles and to a depth of 65 inches is light brownish gray and grayish brown clay and silty clay that contain few to common fragments of siltstone.

Lorman soils are slightly acid to strongly acid in the upper part and medium acid to mildly alkaline in the lower part. Available water capacity is high. Permeability is very slow. Runoff is medium to very rapid, and the erosion hazard is severe. These soils shrink and crack when dry and swell when wet.

The moderately well drained Loring soils make up about 23 percent of the unit. Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of 27 inches is dark brown silty clay loam and silt loam and to a depth of 60 inches is firm, compacted, dark brown silt loam that has grayish and brownish mottles.

Loring soils are medium acid through very strongly acid. Permeability is moderate in the upper part of the soil and moderately slow in the fragipan. Available water capacity is medium. Runoff is medium, and the erosion hazard is moderate.

Included with these soils in mapping are small areas of steep Memphis and Smithdale soils and a few areas of Providence and Lexington soils on ridges. Also included are a few areas of Collins and Falaya soils in narrow drainageways.

Most of this unit is woodland, and a small acreage is pasture.

This association has low potential for row crops, grasses, and legumes because of the severe erosion hazard and steepness of the slopes.

Potential is moderately high for loblolly pine and shortleaf pine. Lorman soils have moderate equipment restrictions. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

This unit has low potential for urban uses. Steep slopes, low strength, and high shrink-swell properties are some of the limitations. Lorman soils in capability unit VIIe-1, woodland suitability group 3c2; Loring soils in capability unit VIe-2, woodland suitability group 2o7.

MeA—Memphis silt loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

This soil is medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. Seedbed preparation and tillage are sometimes concerns because of crusting and packing of the silty soil.

Included with this soil in mapping are small areas of Leverett and Natchez soils.

Most of this soil is used for row crops and pasture, and a small acreage is woodland.

The soil has high potential for most locally grown row crops, grasses, and legumes. Conservation practices such as row arrangement and return of crop residue to the soil help maintain organic matter content and improve soil tilth.

Potential is very high for cherrybark oak, water oak, sweetgum, yellow-poplar, and loblolly pine. There are no significant limitations in woodland use or management.

This soil has high potential for urban use. Low strength is the main limitation. Capability unit I-1, woodland suitability group 1o7.

MeB2—Memphis silt loam, 2 to 5 percent slopes, eroded. This is a well drained soil on ridgetops on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

This soil is medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is medium, and the erosion hazard is moderate. Seedbed preparation and tillage are sometimes concerns because of crusting and packing of the silty soil. The surface layer has been thinned by erosion, and in some places rills have formed and exposed the subsoil.

Included with this soil in mapping are small areas of Loring and Leverett soils. Also included are a few areas of severely eroded Memphis soils that have rills and a few gullies.

Most of this soil is used for row crops and pasture, and a small acreage is woodland.

The soil has high potential for most locally grown row crops, grasses, and legumes. Return of crop residue to the soil helps maintain organic matter content and improve tilth. Other conservation practices such as crop rotation, minimum tillage, contour farming, terraces, and vegetated waterways are needed in places to help control erosion.

Potential is very high for cherrybark oak, water oak, willow oak, sweetgum, yellow-poplar, and loblolly pine. There are no significant limitations in woodland use or management.

The soil has high potential for urban use. Low strength is the main limitation. Capability unit IIe-2, woodland suitability group 1o7.

MeC2—Memphis silt loam, 5 to 8 percent slopes, eroded. This well drained, sloping soil is on uplands.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

This soil is medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is medium, and the erosion hazard is moderate. Seedbed preparation and tillage are sometimes concerns because of crusting and packing of the silty soils. The surface layer has been thinned by erosion, and in some places rills and a few shallow gullies have formed and exposed the subsoil.

Included with this soil in mapping are small areas of Loring soils and severely eroded Memphis soils that have rills and a few deep gullies.

Most of this soil is used for pasture, and the remaining acreage is used for row crops and as woodland.

The soil has medium potential for most locally grown row crops and high potential for grasses and legumes. The erosion hazard is greater when cultivated row crops are grown, but erosion can be controlled by using an adequate cropping system, grassed waterways, contouring, minimum tillage, and terraces. The return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is very high for cherrybark oak, water oak, willow oak, sweetgum, yellow-poplar, and loblolly pine. There are no significant limitations in woodland use or management.

The soil has high potential for most urban uses. Low strength is the main limitation. This limitation can be offset by good design and careful installation procedures. Capability unit IIIe-2, woodland suitability group 1o7.

MeD2—Memphis silt loam, 8 to 12 percent slopes, eroded. This well drained, strongly sloping soil is on uplands.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

This soil is medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is rapid, and the erosion hazard is severe. The surface layer has been thinned by erosion, and in some places rills and a few shallow gullies have formed and exposed the subsoil.

Included with this soil in mapping are small areas of Loring soils and severely eroded Memphis soils that have rills and a few deep gullies.

Most of this soil is used for pasture and woodland, and a small acreage is in row crops.

This soil has low potential for most locally grown row crops because of the strong slopes and the severe erosion hazard. Permanent cover of trees, grasses, or legumes reduces erosion. The soil has high potential for grasses and legumes. Good management practices include proper stocking, controlled grazing, and weed control.

Potential is very high for cherrybark oak, water oak, willow oak, sweetgum, yellow-poplar, and loblolly pine. There are no significant limitations in woodland use or management.

This soil has medium potential for urban uses. Low strength and slopes are the main limitations. These limitations can be offset by good design and careful installation procedures. Capability unit IVe-2, woodland suitability group 1o7.

MeD3—Memphis silt loam, 8 to 12 percent slopes, severely eroded. This well drained, strongly sloping soil is on uplands.

Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

The soil is medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is rapid, and the erosion hazard is severe. This soil has undergone severe sheet erosion; it has many rills and a few deep gullies.

Included with this soil in mapping are small areas of Natchez and Loring soils. Also included are small areas of eroded Memphis soils that have a thicker surface layer and fewer gullies.

Most of this soil is used for pasture, and the remaining acreage is woodland.

This soil has low potential for row crops because of the strong slopes and the severe erosion hazard. Permanent cover of trees, grasses, or legumes reduces erosion. The soil has medium potential for grasses and legumes; erosion is a severe hazard during establishment of pasture. Smoothing and sloping of gullies facilitate mowing and other cultural practices.

Potential is very high for cherrybark oak, water oak, willow oak, sweetgum, yellow-poplar, and loblolly pine. There are no significant limitations in woodland use or management.

The soil has medium potential for urban use. Low strength and strong slopes are the main limitations. These limitations can be offset by good design and careful installation procedures. Capability unit VIe-1, woodland suitability group 1o7.

MeF3—Memphis silt loam, 12 to 25 percent slopes, severely eroded. This well drained, steep soil is on uplands.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

The soil is medium acid to strongly acid. Permeability is moderate. Available water capacity is high. Runoff is very rapid, and the erosion hazard is very severe. This soil has undergone severe sheet erosion; it has many rills and deep gullies.

Included with this soil in mapping are small areas of Natchez and Morganfield soils.

Most of this soil is used for pasture, and the remaining acreage is woodland.

Because of steepness of slopes and the severe erosion hazard, this soil is not suitable as cropland. Permanent cover of trees, grasses (fig. 4), or legumes reduces erosion. The soil has medium potential for grasses and legumes. When the soil is used for pasture, good management practices are proper stocking, carefully controlled grazing, and weed control. Smoothing and shaping of gullies facilitate mowing and other cultural practices.

Potential is moderately high for cherrybark oak, water oak, willow oak, sweetgum, and loblolly pine. There are no significant limitations in woodland use or management.

The soil has low potential for urban use. Steep slopes and a few deep gullies are difficult limitations to overcome. Special design and careful construction are essential. Capability unit VIIe-2, woodland suitability group 1r8.

MM—Memphis-Morganfield association, hilly. This unit consists of well drained soils in a regular and repeating pattern. The landscape is mainly steep hills with narrow, winding ridgetops, steep side slopes, and narrow drainageways. The Memphis soils are on the narrow ridgetops and steep side slopes. The nearly level Morganfield soils are in the narrow drainageways. Mapped areas range from 200 to several thousand acres. Slopes are 2 to 25 percent.

The well drained Memphis soils make up about 77 percent of the unit. Typically, the surface layer is dark brown silt loam about 7 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

Memphis soils are medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

The well drained Morganfield soils make up about 14 percent of the unit. Typically, the surface layer is dark brown silt about 8 inches thick. This is underlain to a depth of 60 inches by dark brown, yellowish brown, and dark yellowish brown silt. The lower 37 inches has grayish brown and dark yellowish brown mottles.

Morganfield soils are slightly acid to mildly alkaline. Permeability is moderate. Available water capacity is very high. Runoff is slow, and the erosion hazard is slight.

Included with these soils in mapping are a few areas of the moderately well drained Loring soils and the well drained Lexington soils. Also included are a few areas of the moderately well drained Collins soils and the somewhat poorly drained Falaya soils on flood plains.

Most areas of this unit are used as woodland, and a small acreage is pasture.

This unit has low potential for row crops, grasses, and legumes because of the steep slopes and the severe erosion hazard. Flooding and the narrow flood plains are limitations on Morganfield soils.

Potential is high for cherrybark oak, loblolly pine, sweetgum, water oak, and yellow-poplar. There are no significant limitations in woodland use or management.

This unit has low potential for most urban uses. Low strength and steep slopes on the uplands and flooding on the flood plains are the main limitations. With onsite selection, proper design, and careful installation procedures, many areas within the unit can be used for this purpose. Memphis soils in capability unit VIe-1, woodland suitability group 1r8; Morganfield soils in capability unit IVw-1, woodland suitability group 1w5.

MN—Memphis-Natchez association, hilly. This unit consists of well drained soils that generally occur in a regular and repeating pattern. The landscape is steep hills with long, narrow, winding ridges that have steep side slopes cut by many drainageways. The Memphis soils are generally on the long, narrow ridges and the upper parts of side slopes. Natchez soils are generally on the lower parts of side slopes. Mapped areas range from 300 to several thousand acres. Slopes are 12 to 45 percent.

The well drained Memphis soils make up about 72 percent of the unit. Typically, the surface layer is dark brown silt loam about 7 inches thick. The subsoil to a depth of 24 inches is dark brown silty clay loam and to a depth of about 60 inches is dark brown silt loam.

Memphis soils are medium acid to very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

The well drained Natchez soils make up about 25 percent of the unit. Typically, the surface layer is dark

brown silt loam about 3 inches thick. The subsoil is dark yellowish brown silt loam that extends to a depth of 27 inches. This is underlain to a depth of 72 inches by dark yellowish brown silt loam.

Natchez soils are medium acid to moderately alkaline. Permeability is moderate. Available water capacity is high. Runoff is rapid, and the erosion hazard is severe.

Included with these soils in mapping are a few areas of Morganfield and Adler soils in narrow drainageways.

Almost all of this unit is woodland, and a small acreage is pasture.

The unit in most places is too steep and rough for row crops and is better suited to permanent vegetation than to crops. It has low potential for grasses and legumes. When the soils are used for pasture, overgrazing is a concern.

Potential is very high for cherrybark oak, eastern cottonwood, loblolly pine, sweetgum, and yellow-poplar. Equipment limitations caused by steepness of slopes and the erosion hazard are moderate. To overcome these limitations, special equipment and careful harvesting methods are needed.

This unit has low potential for most urban uses. Low strength and steep slopes are the main limitations. With onsite selection, proper design, and careful installation procedures, many areas within the unit can be used for urban purposes. Capability unit VIe-1, woodland suitability group 1r8.

Mo—Morganfield silt. This well drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark brown silt about 8 inches thick. This is underlain to a depth of 60 inches by dark brown, yellowish brown, and dark yellowish brown silt that has grayish brown and dark yellowish brown mottles below a depth of 23 inches.

The soil is slightly acid to mildly alkaline. Permeability is moderate. Available water capacity is very high. Runoff is slow, and the erosion hazard is slight. The soil has good tilth and can be worked throughout a relatively wide range of moisture conditions. Occasional overflow in winter and spring can cause slight to moderate crop damage.

Included with this soil in mapping are small areas of Adler and Robinsonville soils.

This soil is used for row crops, pasture, and woodland.

This soil has high potential for most locally grown crops, small grain, grasses, and legumes. Row arrangement and surface field ditches are needed to remove excess water from the surface. Return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is very high for eastern cottonwood, green ash, Nuttall oak, sweetgum, water oak, and yellow-poplar. There are no significant limitations in woodland use or management.

This soil has low potential for urban uses because of the flood hazard. Capability unit IIw-1, woodland suitability group 1o4.

Pt—Pits. Several pits are in the central and eastern parts of the county. These pits are open excavations from which gravel, sand, and clay have been removed. Depth to gravel and sand ranges from about 3 to 5 feet or more; the gravel pits and sand pits are in the Tuscaloosa Geologic Formation. Depth to clay ranges from about 5 to 20 feet; the clay pits are in the Eutaw Geologic Formation.

Areas from which soil and underlying materials have been removed for use in construction of roads are included with this unit in mapping.

The excavation of the pits has exposed material that supports low-quality grasses and trees. Most of the vegetation has little economic value except for erosion control. Many areas are left bare. These areas have low potential as cropland, pasture, and woodland and for urban uses. Not assigned to a capability unit or a woodland suitability group.

PvC2—Providence silt loam, 5 to 8 percent slopes, eroded. This moderately well drained, sloping soil is on uplands in the eastern part of the county.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The subsoil to a depth of 30 inches is strong brown silty clay loam and silt loam; to a depth of 66 inches, it is firm, compacted strong brown and reddish brown silt loam and sandy loam; and to a depth of 70 inches it is yellowish red sandy loam.

The soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is medium, and the erosion hazard is moderate. There is a perched water table above the fragipan in winter and spring. The soil can be tilled only within a moderate range of moisture content without crusting and packing. The surface layer has been thinned by erosion, and in some places rills have formed and exposed the subsoil. A few shallow gullies are in most fields.

Included with this soil in mapping are a few small areas of Loring, Lexington, and Smithdale soils. Also included are a few small areas of severely eroded Providence soils that have rills and a few deep gullies.

Most of this soil is used as pasture and woodland, and a small acreage is in row crops.

This soil has medium potential for most locally grown row crops and high potential for grasses and legumes. The use of cultivated row crops increases the erosion hazard, but erosion can be controlled by using an adequate cropping system, grassed waterways, contour farming, minimum tillage, and terraces. The return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is high for loblolly pine, Shumard oak, sweetgum, and yellow-poplar. There are no significant limitations in woodland use or management.

This soil has high potential for urban uses. Low strength is the main limitation. Proper design and careful installation procedures help offset this limitation. The seasonal high water table and slope are severe limitations

for septic tank absorption fields. Capability unit IIIe-1, woodland suitability group 2o7.

PvD2—Providence silt loam, 8 to 12 percent slopes, eroded. This moderately well drained, strongly sloping soil is on uplands in the eastern part of the county.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil to a depth of 30 inches is strong brown silty clay loam and silt loam; to a depth of 66 inches, it is firm, compacted strong brown and reddish brown silt loam and sandy loam; and to a depth of 70 inches it is yellowish red sandy loam.

The soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Runoff is rapid, and the erosion hazard is severe. Because runoff is rapid available moisture for plant use is limited in some places. The surface layer has been thinned by erosion, and in some places rills and a few shallow gullies have formed and exposed the subsoil.

Included with this soil in mapping are a few small areas of Loring, Lexington, and Smithdale soils. Also included are a few small areas of severely eroded Providence soils that have rills and a few deep gullies.

Most of this soil is used for pasture, and a small acreage is in woodland and row crops.

The soil has low potential for most locally grown row crops because of slope and the severe erosion hazard. Permanent cover reduces erosion. The soil has medium potential for grasses and legumes. Good management practices include proper stocking, controlled grazing, and weed control.

Potential is high for loblolly pine, Shumard oak, sweetgum, and yellow-poplar. There are no significant limitations in woodland use or management.

This soil has medium potential for urban uses. Low strength and slopes are the main limitations. Proper design and careful installation procedures help offset this limitation. Capability unit IVe-1, woodland suitability group 2o7.

Rb—Robinsonville very fine sandy loam. This well drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown very fine sandy loam about 8 inches thick. This is underlain to a depth of 60 inches by dark brown to brown fine sandy loam, silt loam, and very fine sandy loam.

This soil is mildly alkaline or moderately alkaline. Permeability is moderate to moderately rapid. Available water capacity is medium. Runoff is slow to medium, and the erosion hazard is slight. The soil has good tilth and can be worked throughout a wide range of moisture conditions. Occasional overflow in winter and spring causes slight to moderate crop damage.

Included with this soil in mapping are small areas of Morganfield and Bruno soils.

Most of the soil is used for row crops, and a small acreage is pasture and woodland.

This soil has high potential for most locally grown row crops, small grain, grasses, and legumes. Row arrangement and surface field ditches remove excess water from the surface. Return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

This soil has very high potential for eastern cottonwood, green ash, sweetgum (fig. 5), and American sycamore. There are no significant limitations in woodland use or management.

This soil has low potential for urban use because of the flood hazard. Capability unit IIw-1, woodland suitability group 1o4.

Ro—Rosebloom silt loam. This poorly drained soil is on broad flood plains. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The subsoil to a depth of 36 inches is light brownish gray and gray silt loam that has brownish mottles; to a depth of 48 inches, it is dark gray silty clay loam that has brownish mottles; and to a depth of 56 inches it is brownish silty clay loam. This is underlain to a depth of 60 inches by mottled grayish and yellowish silt loam.

This soil is strongly acid or very strongly acid in the upper part of the profile and slightly acid or neutral in the lower part. Permeability is slow. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. Seedbed preparation and tilth are usually delayed by wetness. Occasional overflow causes slight to moderate damage to crops.

Included with this soil in mapping are small areas of Deerford and Falaya soils.

Most of this soil is used for row crops and pasture, and a small acreage is woodland.

This soil has medium potential for locally grown row crops, grasses, and legumes because of wetness and occasional flooding. Row arrangement and surface field ditches are needed to remove excess water from the surface. Return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is high for green ash, eastern cottonwood, cherrybark oak, Nuttall oak, water oak, willow oak, sweetgum, and loblolly pine. Equipment limitations caused by wetness and occasional flooding in winter and spring are moderate. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

This soil has low potential for urban use because of wetness and the flood hazard. Capability unit IIIw-2, woodland suitability group 2w6.

Sa—Sharkey clay. This poorly drained soil is on broad flood plains of low relief in the western part of the county. Slopes are 0 to 2 percent.

Typically, the surface layer is very dark grayish brown clay about 5 inches thick. The subsoil to a depth of 50 inches is dark gray clay that has brownish mottles.

This soil is slightly acid to moderately alkaline. Permeability is very slow. Available water capacity is medium to high. Runoff is very slow, and the erosion hazard is slight.

The soil has poor tilth and can be worked over only a narrow range of moisture conditions. The soil is flooded in winter and spring.

Included with this soil in mapping are a few small areas of Tunica and Bowdre soils.

Most of the soil is used for row crops, and a small acreage is woodland.

This soil has medium potential for most locally grown row crops, grasses, and legumes. Its potential is limited because of the flooding in winter and spring. Soybeans following the winter and spring floods produce high yields in most years. Row arrangement and surface field ditches are needed to remove excess water from the surface. The return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is moderately high for green ash, eastern cottonwood, sweetgum, and water oak. Equipment limitations caused by wetness and flooding are severe. These limitations can be offset by harvesting during the drier seasons and by using special equipment.

This soil has low potential for urban use. The major limitations are wetness, high shrink-swell properties, and flooding. Capability unit IVw-2, woodland suitability group 3w6.

SH—Sharkey association. This unit consists of poorly drained soils on broad, frequently flooded flood plains. The mapped areas have low relief and have small lakes and bayous. The composition of this unit is fairly uniform, based on widely spaced transects and traverses. It was not studied so closely as most of the other units in the county, but mapping has been controlled well enough for the expected use of the soils. Mapped areas are about 1 to 4 miles wide and several hundred acres in size. Slopes are 0 to 2 percent.

The poorly drained Sharkey soils make up about 90 percent of the unit. Typically, the surface layer is very dark grayish brown clay about 5 inches thick. The subsoil to a depth of 50 inches is dark gray clay that has brownish mottles.

These soils are slightly acid to moderately alkaline. Permeability is very slow. Available water capacity is medium to high. Runoff is very slow, and water ponds in low areas for long periods. The erosion hazard is slight. The soils are flooded in winter and spring.

Included with these soils in mapping are a few areas of Tunica and Bowdre soils. Also included are small areas of Commerce soils along the natural levees of bayous.

Almost all of the unit is woodland.

This unit has low potential for most locally grown row crops and small grain and medium potential for grasses and legumes. Its potential is limited because of flooding several times each year.

Potential is moderately high for green ash, eastern cottonwood, sweetgum, and water oak. Equipment limitations caused by wetness and flooding are severe. These limitations can be offset by harvesting during the drier seasons and by using special equipment.

This unit has low potential for urban use. The main limitations are wetness, high shrink-swell properties, and flooding. Capability unit Vw-3, woodland suitability group 3w6.

SmF—Smithdale-Lexington complex, 15 to 30 percent slopes. This unit consists of areas of Smithdale and Lexington soils that are so intermingled that it is impractical to separate them at the mapping scale used. The complex consists of moderately steep and steep soils in the eastern part of the county. Individual areas range in size from about 15 to 55 acres. The Lexington soil is on ridgetops and the more gentle side slopes. The Smithdale soil is on the steeper side slopes.

The well drained Smithdale soil makes up about 66 percent of the unit. Typically, the surface layer is dark brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown fine sandy loam that extends to a depth of 15 inches. The subsoil to a depth of 52 inches is red sandy clay loam and loam and to a depth of about 70 inches is red sandy loam.

The Smithdale soil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and the erosion hazard is severe.

The well drained Lexington soil makes up about 21 percent of the unit. Typically, the surface layer is dark brown silt loam about 3 inches thick. The subsoil to a depth of 25 inches is strong brown silty clay loam and silt loam and to a depth of about 65 inches is yellowish red sandy loam and red loam.

The Lexington soil is medium acid or strongly acid. Permeability is moderate. Available water capacity is high. Runoff is medium, and the erosion hazard is severe.

Included with these soils in mapping are small areas of Memphis, Lorman, and Providence soils. Also included are small areas of soils that have a thin, silty surface layer over a clayey subsoil.

Most of this unit is woodland, and a small acreage is pasture.

These soils have low potential for row crops because of the steep slopes and the severe erosion hazard. They have medium potential for grasses and legumes. When the soils are used for pasture, suitable conservation practices include proper stocking, carefully controlled grazing, and weed control.

Potential is high for loblolly pine. The major limitation is moderate plant competition.

These soils have low potential for urban use because of the steep slopes. Capability unit VIIe-3; Smithdale soil in woodland suitability group 2o1, Lexington soil in woodland suitability group 2o7.

SX—Smithdale-Lexington association, hilly. This unit consists of well drained, hilly soils on rough uplands, generally in the southeastern part of the county. These rough, wooded areas range from 200 to several thousand acres and are dissected by small streams with narrow flood plains. Smithdale soils are on the steep side slopes, and Lexington soils are on the ridgetops and the upper

parts of slopes. The composition of this unit is more variable than that of most of the other units in the county, but mapping has been controlled well enough for the expected use of the soils. Slopes are 17 to 35 percent.

The well drained Smithdale soils make up about 45 percent of the unit. Typically, the surface layer is dark brown fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown fine sandy loam that extends to a depth of 15 inches. The subsoil to a depth of 52 inches is red sandy clay loam and loam and to a depth of about 70 inches is red sandy loam.

Smithdale soils are strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and the erosion hazard is severe.

The well drained Lexington soils make up about 30 percent of the unit. Typically, the surface layer is dark brown silt loam about 3 inches thick. The subsoil to a depth of 25 inches is strong brown silty clay loam and silt loam and to a depth of aobut 65 inches is yellowish red sandy loam and red loam.

Lexington soils are medium acid or strongly acid. Permeability is moderate. Available water capacity is high. Runoff is medium, and the erosion hazard is severe.

Included with these soils in mapping are small areas of Lorman and Providence soils and small areas of silty soils that generally occur on side slopes.

Most of the unit is woodland, and a small acreage is pasture.

In most places these soils are too steep and rough for row crops and are better suited to permanent cover. The soils have low potential for grasses and legumes. When the soils are used for pasture, suitable conservation practices include proper stocking, carefully controlled grazing, and weed control.

Potential is high for loblolly pine, longleaf pine, slash pine, cherrybark oak, sweetgum, and yellow-poplar. There are no significant limitations in woodland use or management.

These soils have low potential for most urban uses. Steep slopes are the main limitation. With onsite selection, proper design, and careful installation procedures, many areas within the association can be used for these purposes. Smithdale soils in capability unit VIIe-3, woodland suitability group 2o1; Lexington soils in capability unit VIe-1, woodland suitability group 2o7.

Tu—Tunica silty clay. This poorly drained soil is on broad flood plains in the western part of the county. Slopes are 0 to 3 percent.

Typically, the surface layer is very dark grayish brown silty clay about 6 inches thick. The subsoil is dark gray clay that has brownish mottles and that extends to a depth of 28 inches. This is underlain to a depth of about 55 inches by dark grayish brown silt loam mottled in shades of brown.

This soil is slightly acid to mildly alkaline. Permeability is slow in the clayey part and moderate in the loamy part. Available water capacity is medium to high. Runoff is very slow, and the erosion hazard is slight. The soil has poor tilth and can be worked over a narrow range of moisture conditions. The soil is flooded in winter and spring.

Included with this soil in mapping are small areas of Sharkey and Bowdre soils.

Most of the soil is used for row crops, and a small acreage is woodland.

This soil has low potential for most locally grown row crops, grasses, and legumes. Its potential is limited because of the flooding in winter and spring. Soybeans planted after the winter and spring floods produce high yields in most years. Row arrangement and surface field ditches are needed to remove excess water from the surface. The return of crop residue to the soil helps maintain organic matter content and improve soil tilth.

Potential is high for cherrybark oak, eastern cottonwood, green ash, Nuttall oak, sweetgum, and American sycamore. Equipment limitations caused by wetness and flooding are severe. These limitations can be offset by harvesting during the drier seasons and by using special equipment.

This soil has low potential for urban use. The major limitations are wetness, high shrink-swell properties, and flooding. Capability unit IVw-2, woodland suitability group 2w6.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture and woodland, as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities, and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates wetness or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

HERMAN S. SAUCIER, conservation agronomist, Soil Conservation Service, helped prepare this section.

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 82,900 acres in the survey area was used for crops and pasture in 1967, according to the Conservation Needs Inventory. Of this total 49,900 acres was used for permanent pasture, and 33,000 acres was used for row crops, mainly soybeans, corn, and cotton.

The potential of the soils in Jefferson County for increased production of food is good. About 59,000 acres of potentially good cropland is currently used as woodland, and about 21,000 acres is currently used as pasture. In addition to the reserve productive capacity represented by this land, food production could also be increased considerably by extending the latest crop production technology to all cropland in the county. This soil survey can greatly facilitate the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development. It was estimated that in 1967 there were about 5,700 acres of urban and built-up land in the county; this figure has been growing at the rate of about 20 acres each year. The use of this soil survey to help make land use decisions that will influence the future role of farming in the county is discussed in the section "General soil map for broad land use planning."

Soil erosion is the major soil concern on about one-third of the cropland and pasture in Jefferson County. If slope is more than 2 percent, erosion is a hazard. Memphis, Loring, and Providence soils, for example, have slopes of 2 to 12 percent.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Lorman soils, and on soils that have a layer in or below the subsoil that limits the depth of the root zone. Such layers include a fragipan, as in Loring and Providence soils. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for recreation and for fish and wildlife.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth for the following crop.

Slopes are so short and irregular that contour tillage or terracing is not practical in most areas of the sloping Memphis, Loring, and Providence soils. On these soils, a cropping system that provides substantial vegetative cover is required to control erosion unless minimum tillage is practiced. Minimizing tillage and leaving crop residues on the surface help to increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area but are more difficult to use successfully on the eroded soils. No-tillage for corn and soybeans is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. Their use is most practical on deep, well drained soils that have regular slopes. Contouring is a widespread erosion control practice in the survey area. It is best adapated to soils that have smooth, uniform slopes.

Information for the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil drainage is the major management need on about one-third of the acreage used for crops in the survey area. Some soils are naturally so wet that the production of crops common to the area is generally not possible. These are the poorly drained Rosebloom, Sharkey, and

Tunica soils, which make up about 23,200 acres in the survey area.

Unless artificially drained, the somewhat poorly drained soils are so wet that crops are damaged during most years. In this category are the Falaya, Deerford, Commerce, Convent, and Bowdre soils, which make up about 20,820 acres.

Robinsonville and Morganfield soils have good natural drainage most of the year. Small areas of wetter soils along drainageways and in swales are commonly included in areas of the moderately well drained Adler, Collins, and Bruin soils. Artificial drainage is needed in some of these wetter areas.

Information on drainage design for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil fertility is naturally low in most soils of the survey area. All but Natchez soils are naturally acid. The soils on flood plains, such as Morganfield, Adler, Convent, Commerce, and Bruin soils, range from slightly acid to mildly alkaline and are naturally higher in plant nutrients than most soils on uplands. Sharkey and Tunica soils, in low areas and drainageways, are slightly acid or neutral.

Many soils on uplands are naturally strongly acid, and if they have never been limed, applications of ground limestone are required to raise the pH level sufficiently for good plant growth. Available phosphorus and potash levels are naturally low in most of these soils. On all soils additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of silt loam that is light in color and low in content of organic matter. Generally the structure of such soils is weak, and intense rainfall causes the formation of a slight crust on the surface. The crust is hard when dry and nearly impervious to water. Once the crust forms, it reduces infiltration and increases runoff. Regular additions of crop residue, manure, and other organic material can help to improve soil structure and reduce crust formation.

Fall plowing is generally not a good practice in the county. Many of the soils are nearly as dense and hard at planting time after fall plowing as they were before they were plowed. Also, about one-third of the cropland consists of sloping soils that are subject to damaging erosion if they are plowed in the fall.

The dark colored Sharkey, Tunica, and Bowdre soils are clayey, and tilth is a concern because in many years the soils stay wet until late in spring. If they are wet when plowed, they tend to be very cloddy when dry and good seedbeds are difficult to prepare. On these soils, fall plowing generally results in good tilth in spring.

Field crops suited to the soils and climate of the survey area include many that are not now commonly grown. Cotton, corn, and soybeans are the principal row crops. Grain sorghum, peanuts, potatoes, and similar crops can be grown if economic conditions are favorable. Wheat and oats are the common close-growing crops.

Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil or that a given crop is not commonly irrigated.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 5.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forest trees, or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 6. All soils in the survey area are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability unit is identified in the description of each soil map unit in the section "Soil maps for detailed planning." Capability units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-1 or IIIe-2.

Woodland management and productivity

JOSEPH V. ZARY, forester, Soil Conservation Service, helped prepare this section.

This section contains information on the relationship between trees and their environment, particularly between trees and the soils on which they grow. It also includes information on the kinds, amount, and condition of woodland resources and the industries they support. The section also includes interpretations of the soils that can be used by owners of woodland, by foresters, by forest managers, and by agricultural workers to develop and carry out plans for profitable tree farming.

The total environment of the tree is a complex integration of numerous interrelated physical and biological factors (*7*). Physical factors include those of the climate, such as various measures of radiation, of precipitation, and of movement and composition of the air. They also include factors of the soil such as texture, structure, and depth; moisture capacity and drainage; nutrient content; and topographic position. Biological factors are the plant associates; the larger animals that use the forest as a source of food and shelter; the many small animals, insects, and insectlike animals; the fungi to which the trees are hosts; and the myriads of micro-organisms in the soil, the functions of many of which are beneficial to the tree.

Possibly the most important environmental factor influencing tree growth and woodland species composition is soil. In addition to being a reservoir for moisture for a tree, soil provides all the essential elements required in growth except those derived from the atmosphere—carbon from carbon dioxide, and oxygen (*7*). Obviously, soil also provides the medium in which a tree is anchored.

The many characteristics of soil, such as chemical composition, texture, structure, depth, and position, affect the growth of a tree to the extent to which they affect the

supply of moisture and nutrients. A number of studies have shown strong correlations between productivity of site, or growth of trees, and various soil characteristics, such as depth and position on the slope. The relationships are often indirect. The ability of a soil to supply water and nutrients to trees is strongly related to its texture, structure, and depth. Sands contain only a small amount of plant nutrients and are low in available water capacity. Many fine textured soils are high in plant nutrients and have high available water capacity. Aeration is impeded in clays, however, particularly under wet conditions, so metabolic processes requiring oxygen in the roots are inhibited. The position on slope strongly influences species composition. Moisture-loving species such as sweetgum and yellow-poplar thrive on moist, well drained soils on the lower to middle parts of slopes, in coves, and in areas adjoining streams, whereas less demanding species such as oaks, hickories, and pines grow well on the middle parts of slopes and moderately well on the upper parts of slopes and on ridges. Silvicultural practices that help to prevent the destruction of organic matter and the compaction of soil are important in maintaining suitable conditions of soil moisture and aeration.

About 239,400 acres, or 73 percent of the total land area of Jefferson County, is classified as commercial forest (*9*). Commercial forest land is defined as forest land that is producing or capable of producing crops of industrial wood and that has not been withdrawn from timber use. This commercial forest is divided into classes of ownership as follows: 125,500 acres is owned by farmers; 72,300 acres is owned by miscellaneous private owners; 28,500 acres is owned by the forest industry; 7,800 acres is under National Forest ownership; and 5,300 acres is in other public ownership (*11*).

According to the 1967 Conservation Needs Inventory for Mississippi, 125,000 acres, or 54 percent of the commercial forest land, was considered to have "adequate treatment" (*10*). The remaining 46 percent of the commercial forest land, or 107,200 acres, is in need of further conservation treatment. "Establishment and Reinforcement," including practices such as tree planting, site preparation, natural seeding, and direct seeding, was needed on 82,000 acres. "Timber Stand Improvement," including practices such as release, salvage and sanitation cuttings, and thinning, was needed on 25,200 acres. The treatments and practices mentioned are especially needed on woodlands included in the farmer ownership and miscellaneous ownership categories. These woodlands total 197,800 acres. Generally, these woodlands throughout the county are receiving low to medium levels of management and are producing far less than their growth potential.

The commercial forest can also be subdivided into forest types, which are stands of trees of similar character, composed of the same species, and growing under the same ecological and biological conditions. These forest types are named for the species which are present in the greatest abundance and frequency (*6*).

On this basis, the oak-hickory forest type, composed mainly of upland oaks and hickories, is the most important. It occupies about 108,300 acres in the county. Common associates in this forest type are maple, elm, yellow-poplar, and some pine and black walnut (*6*, *8*, *9*).

The oak-pine forest type, composed mainly of upland oaks and mixtures of loblolly pine and shortleaf pine, is the second most extensive forest type. It occupies about 39,900 acres. Common associates include sweetgum, blackgum, hickory, and yellow-poplar.

The loblolly pine-shortleaf pine forest type, composed of loblolly pine or shortleaf pine, singly or in combination, is the third most important. It occupies about 34,200 acres. Common associates include oak, hickory, sweetgum, and blackgum.

The three forest types mentioned above make up 182,400 acres, or about 76 percent of the total acreage of commercial forest in the county. These forest types are so intermingled that it would be difficult to accurately delineate them either on a map or by geographic description. Generally, however, the loblolly pine-shortleaf pine forest type occupies the ridges and upper slopes in the eastern half of the county, and the oak-hickory forest type occupies the loessial bluffs, uplands, and middle slopes in the western half of the county. The oak-pine forest type occurs in the central part of the county and is intermixed with the other two types.

There are two bottom land forest types in the county. The oak-gum-cypress forest type, composed of tupelo, blackgum, sweetgum, oaks, and baldcypress, occupies about 34,200 acres. Common associates include eastern cottonwood, willow, ash, elm, hackberry, and maple. The elm-ash-cottonwood forest type, composed of elm, ash, and cottonwood, occupies approximately 22,800 acres. Common associates include willow, American sycamore, beech, and maple. These two bottom land forest types occur mainly on the flood plain of the Mississippi River and also along the bottoms of the North and South Forks of Coles Creek. In recent years some of these bottom land forests have been converted to cropland for economic reasons.

Jefferson County's commercial forest land and the tree crops harvested on it help to support a substantial timber economy in southwest Mississippi. As of 1976, there were three pulpwood dealers operating in the county (*3*). Pulpwood procurement included both pine and hardwood species. There was also one secondary wood-using industry of major importance operating in the city of Fayette. This operation includes huge storage sheds in which hardwood lumber is air dried. Most of the lumber is used as furniture dimension parts. Wood-using industries and pulpwood yards in adjoining counties also procure and use a considerable volume of the wood produced in Jefferson County.

Besides furnishing raw material for the wood-using industries and affording employment for many industrial workers, the commercial forest land of Jefferson County provides food and shelter for wildlife and offers opportu-

nity for sport and recreation to many users annually. Approximately 35 hunting and fishing clubs presently lease and use the commercial forest land. Moreover, this forest land provides watershed protection, helps to arrest soil erosion and reduce sedimentation, enhances the quality and value of water resources, and furnishes a limited amount of native forage for livestock.

Table 7 contains information useful to woodland owners or forest managers planning use of soils for wood crops. Map unit symbols for soils suitable for wood crops are listed, and the woodland suitability group symbol for each soil is given. All soils bearing the same woodland suitability group symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *woodland suitability group symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

The third element in the symbol, a numeral, indicates the kind of trees for which the soils in the group are best suited and also indicates the severity of the hazard or limitation. The numerals 1, 2, and 3 indicate slight, moderate, and severe limitations, respectively, and suitability for needleleaf trees. The numerals 4, 5, and 6 indicate slight, moderate, and severe limitations, respectively, and suitability for broadleaf trees. The numerals 7, 8, 9 indicate slight, moderate, and severe limitations, respectively, and suitability for both needleleaf and broadleaf trees.

In table 7 the soils are also rated for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade or grow if openings are made in the tree canopy. The invading plants compete with native plants or planted seedlings by impeding or preventing their growth. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index was calculated at age 30 for eastern cottonwood, at age 35 for American sycamore, and at age 50 for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Important trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Woodland understory vegetation

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some types of forest, under proper management, can produce enough understory vegetation to support grazing of livestock or wildlife, or both.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees, the density of the canopy, and the depth and condition of the forest litter. The density of the forest canopy affects the amount of light that understory plants receive during the growing season.

Engineering

PETER FORSYTHE, State engineer, Soil Conservation Service, helped prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material,

and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 8 shows, for each kind of soil, the degree and kind of limitations for building site development; table 9, for sanitary facilities; and table 11, for water management. Table 10 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 8. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 8 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be suffi-

ciently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Slope is also an important consideration in the choice of sites for these structures and was considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 8 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 9 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel are less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the

seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 9 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 10 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 14 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, or wetness. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor.*

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 10 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 14.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 11 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Organic matter in a soil downgrades the suitability of a soil for use in embankments, dikes, and levees.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; alkalinity; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, presence of salts and alkali, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

The soils of the survey area are rated in table 12 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 12 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 9, and interpretations for dwellings without basements and for local roads and streets, given in table 8.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface absorbs rainfall readily but remains firm and is not dusty when dry. Strong slopes can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is firm after rains and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes.

Wildlife habitat

EDWARD G. SULLIVAN, biologist, Soil Conservation Service, helped prepare this section.

Of all the factors that affect wildlife populations, the way man uses the land is the most important. Regardless of how well suited a soil may be for producing wildlife habitat, if the present land use eliminates the plant associations which that soil is capable of producing for wildlife habitat, the animals will not be there. For this reason, the kinds and numbers of wild animals in Jefferson County have varied over the years since the area was settled.

Before Jefferson County was settled, the area was predominantly forest; upland hardwoods and mixed pine-hardwood stands were dominant in the hills, and bottom land hardwood forests were dominant on the flood plains along the streams. Animals, including squirrels, deer, turkeys, bobcats, wolves, eagles, and many kinds of birds, including the now-extinct passenger pigeon, were abundant. Streams probably were clear except after heavy rains and supported a wide variety of adapted fish.

As this area was settled, logging and land clearing pushed the woodland animals farther back into remote areas. In their place came animals adapted to openland. Clearing fields, logging, burning, and other soil disturbances created vegetative patterns which met the needs of bobwhite quail, rabbits, doves, many types of ground- and brush-inhabiting songbirds, rodents, and reptiles. Land clearing, particularly in the steeper areas, resulted in erosion, which filled many of the streams with silt and sand and affected the kinds and numbers of fish they were able to support.

These conditions were responsible for some of the highest populations of bobwhite quail and cottontail anywhere in the country. As this trend continued, numbers of forest animals further declined. Wolves, panthers, deer, and turkeys disappeared. But agricultural and industrial demands and methods continued to change. After World War II, reforestation and wildlife management efforts began. With restocking and management, deer and turkeys have been restored to the county. More intensive farming methods have caused some decline in numbers of farm animals and openland wild animals. Kinds and numbers of wild animals will continue to change as man's methods and demands on the land change.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water (fig. 6). If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 13, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, and oats.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, and clover.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root

zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, and beggarweed.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are autumn-olive and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, and rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer,

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 14 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 14 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 14 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, 'OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The estimated classification, without group index numbers, is given in table 14.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 15 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective

measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 16 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snowmelts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Chemical analyses

DR. V.E. NASH and DR. D.E. PETTRY, agronomists, Mississippi Agricultural and Forestry Experiment Station, helped prepare this section.

The soil analyses reported in table 17 were made in the soil genesis and morphology laboratory of the Mississippi Agricultural and Forestry Experiment Station. The procedures used were essentially like those given in the Soil Survey Investigations Report No. 1 (SSIR).

Soil samples were collected from open pits by the soil scientist. Preparation of the samples for analyses at the laboratory consisted of airdrying, grinding, and screening through a No. 10 sieve. The reaction was determined by the water dilution method using the glass electrode with the Coleman meter.

The exchangeable cations (calcium, magnesium, potassium, and sodium) were extracted by ammonium acetate (Method 5A1 in SSIR). Calcium and magnesium in the extract were determined with a Perkin-Elmer atomic absorption apparatus using strontium chloride to suppress interference of aluminum, silicon, and potassium. Potassium and sodium were analyzed by flamephotometry using a Beckman flame spectrophotometer. Extractable acidity (hydrogen 0 aluminum) was extracted with barium chloride-triethanolamine buffered to pH 8.2.

Base saturation was calculated by dividing the sum of the bases (calcium, magnesium, sodium, and potassium) by the sum of the cations and multiplying by 100. The sum of the cations includes the bases and extractable acidity.

The cation exchange capacity (sum of cations) not only is a measure of the ability of a soil to hold nutrient cations in an available form, but also gives clues as to the type of clay present. For example, montmorillonite has a cation exchange capacity of 80 to 120 milliequivalents per 100 grams and is the only high cation exchange capacity clay mineral present in several of the soils. Montmorillonite has high shrink-swell potential. If one assumes that most of the cation exchange capacity is in the clay fraction, it is apparent that the cation exchange capacity of the clay in Deerford soils is 60 to 70 milliequivalents per 100 grams. This suggests a considerable proportion of the clay fraction is montmorillonite. These soils were formed from thick beds of clayey materials over siltstone of the Coastal Plain. The high shrink-swell potential of these soils also suggests the presence of montmorillonite.

Calcium is the dominant basic exchangeable cation in these soils, particularly in the deeper horizons of such soils as Deerford and Morganfield soils. Magnesium saturation is in the range of 5 to 45 percent, which is adequate for balanced plant nutrition. Exchangeable potassium is low, usually less than 0.2 millequivalents per 100 grams, or 156 pounds per acre where no fertilizer has been applied.

The Comprehensive Soil Classification system adopted by the National Cooperative Soil Survey makes use of chemical soil properties as differentiating criteria in some categories of the system. The Alfisol and Ultisol orders, which are classes in the highest category in the system, are separated on the basis of percentage base saturation deep in the subsoil. Ultisols have base saturation of less than 35 percent in the lower part of the soil, whereas in Alfisols, such values are greater than 35 percent. For example, Leverett soils have base saturation of more than 35 percent; they are Alfisols. The degree of weathering is inversely related to base saturation, since base saturation is a measure of the extent of the replacement of bases by hydrogen during the leaching process.

Physical analyses

Dr. V.E. Nash and Dr. D.E. Pettry, agronomists, Mississippi Agricultural and Forestry Experiment Station, helped prepare this section.

The particle size analyses reported in table 18 were obtained using the hydrometer method of Day. Forty grams of soil were dispersed in a 0.5 percent Calgon solution (sodium phosphate) by mixing for 5 minutes in a milk shaker. The dispersed soil was transferred to a sedimentation cylinder, made to 1,000 milliliters, and equilibrated overnight in a water bath at 30 degrees C. The suspension was then mixed and allowed to settle. Hydrometer readings were taken at predetermined times to determine the clay content. The sand was separated by sieving, and then it was dried and weighed. All results are expressed on the basis of oven-dried weight at 110 degrees C.

The physical properties of soils, such as water infiltration and conduction, shrink-swell potential, crusting, ease of tillage, consistence, and available water capacity are closely related to soil texture.

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*5*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or mapping units, of each soil series are described in the section "Soil maps for detailed planning."

Adler series

The Adler series consists of moderately well drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Adler soils are associated with Convent and Morganfield soils. Adler soils are browner and better drained than Convent soils. They are not so well drained as the well drained Morganfield soils.

Typical pedon of Adler silt loam, 60 feet north of gravel road, 2.5 miles south of Rodney, sec. 19, T. 10 N., R. 1 W.:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; few fine roots; mildly alkaline; abrupt smooth boundary.

C1—8 to 15 inches; dark brown (10YR 4/3) silt loam; few fine faint dark yellowish brown and brown mottles; massive; thin horizontal bedding planes; friable; few fine roots; mildly alkaline; gradual smooth boundary.

C2—15 to 26 inches; dark brown (10YR 4/3) silt loam; few fine faint dark grayish brown (10YR 4/2) and pale brown (10YR 6/3) mottles; massive; thin horizontal bedding planes; friable; mildly alkaline; gradual smooth boundary.

C3—26 to 29 inches; brown (10YR 5/3) silt loam; many medium faint grayish brown (10YR 5/2) and yellowish brown (10YR 5/4) mottles;

massive; thin horizontal bedding planes; friable; mildly alkaline; gradual smooth boundary.

C4—29 to 36 inches; mottled light brownish gray (10YR 6/2), dark grayish brown (10YR 4/2), and pale brown (10YR 6/3) silt loam; massive; thin horizontal bedding planes; friable; dark brown stains between bedding planes; mildly alkaline; gradual smooth boundary.

C5—36 to 50 inches; grayish brown (10YR 5/2) silt loam; common medium faint light brownish gray (10YR 6/2) and brown (10YR 5/3) mottles; massive; friable; mildly alkaline.

Reaction is medium acid to mildly alkaline.

The Ap horizon is dark grayish brown, grayish brown, or brown.

The C1 horizon is brown, dark brown, pale brown, or yellowish brown silt loam or silt. The C2 horizon is similar in color to the C1 horizon except that it has few to many light brownish gray, grayish brown, and pale brown mottles within 20 inches of the surface. The lower C horizons are mottled in shades of gray, yellow, and brown or have a gray or brown matrix and few to many mottles in shades of gray and brown. Clay content of the 10- to 40-inch control section ranges from 5 to 18 percent, and content of sand coarser than very fine sand is less than 15 percent.

Bowdre series

The Bowdre series consists of somewhat poorly drained soils that formed in thin beds of alluvial clays over silty material on broad flood plains. Slopes are 0 to 2 percent.

Bowdre soils are associated with Commerce, Sharkey, and Tunica soils. Bowdre soils are darker colored and finer textured in the A and B horizons than Commerce soils. Bowdre soils have very dark colors in the A and B horizons and are better drained than Sharkey and Tunica soils. Tunica soils have clayey horizons 20 to 36 inches thick, and Sharkey soils have clayey horizons more than 36 inches thick.

Typical pedon of Bowdre silty clay, 3.5 miles north of Church Hill on Mississippi Highway 553, 5 miles west on gravel road to Holmes Lake, 400 yards east of lake on woods road, 10 feet north of road, sec. 16, T. 9 N., R. 1 E.:

A1—0 to 8 inches; very dark grayish brown (10YR 3/2) silty clay; common fine faint dark brown mottles; moderate medium subangular blocky structure; firm, plastic; few fine roots; slightly acid; gradual smooth boundary.

B2—8 to 15 inches; very dark grayish brown (10YR 3/2) clay; few fine distinct dark brown mottles; moderate medium subangular blocky structure; firm, plastic; neutral; abrupt smooth boundary.

IIC1—15 to 19 inches; dark brown (10YR 4/3) silt loam; many fine distinct dark grayish brown mottles; weak medium subangular blocky structure; friable; neutral; clear smooth boundary.

IIC2—19 to 50 inches; mottled dark brown (10YR 4/3), dark yellowish brown (10YR 4/4), and dark grayish brown (10YR 4/2) silt loam; massive; thin bedding planes; friable; moderately alkaline.

Reaction is slightly acid to mildly alkaline.

The A horizon is very dark grayish brown or very dark brown.

The B horizon is very dark grayish brown, dark brown, or very dark gray and has few to many mottles in shades of brown and gray. Texture of the B horizon is silty clay or clay.

The IIC1 horizon is dark brown or brown and has few to many mottles in shades of brown and gray. It is silt loam or very fine sandy loam. The IIC2 horizon is dark brown or brown and has mottles in shades of gray and brown, or it is mottled in shades of brown and gray. It is silt loam, very fine sandy loam, or fine sandy loam. Depth to the IIC horizon ranges from 12 to 20 inches.

Bruin series

The Bruin series consists of moderately well drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Bruin soils are associated with Commerce, Convent, and Robinsonville soils. Bruin soils are more coarsely textured and better drained than Commerce soils. They are better drained and show more horizon development than Convent soils. They are not so sandy throughout as Robinsonville soils.

Typical pedon of Bruin silt loam, 2.5 miles south of Rodney on gravel road, 11 miles west on gravel road to Ashland, 0.5 mile from culvert along ditch, 185 feet north from ditch, sec. 13, T. 10 N., R. 2 W.:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; neutral; abrupt smooth boundary.

A1—7 to 11 inches; dark brown (10YR 4/3) very fine sandy loam; weak coarse subangular blocky structure; friable; neutral; abrupt smooth boundary.

B2—11 to 16 inches; dark brown (10YR 4/3) silt loam; few fine faint dark yellowish brown mottles; weak medium subangular blocky structure; friable; neutral; clear smooth boundary.

B3—16 to 27 inches; dark brown (10YR 4/3) silt loam; common medium faint dark grayish brown (10YR 4/2) mottles; weak medium subangular blocky structure; friable; neutral; abrupt smooth boundary.

C1—27 to 35 inches; dark brown (10YR 4/3) very fine sandy loam; common medium distinct light brownish gray (10YR 6/2) and dark yellowish brown (10YR 4/4) mottles; massive; very friable; neutral; clear smooth boundary.

C2—35 to 55 inches; brown (10YR 5/3) silt loam; common medium distinct dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) mottles; massive; friable; neutral.

Reaction ranges from slightly acid to mildly alkaline.

The Ap horizon is dark brown or dark grayish brown.

The B2 horizon is dark brown and is mottled in shades of brown and gray. Textures range from silt loam to very fine sandy loam. The B3 horizon is brown and has common to many mottles in shades of gray and brown.

The C horizon is brown and has common to many mottles in shades of brown and gray. Textures range from silt loam to very fine sandy loam.

Bruno series

The Bruno series consists of excessively drained soils that formed in stratified sandy alluvium on flood plains. Slopes are 0 to 3 percent.

Bruno soils are associated with Crevasse and Robinsonville soils. Bruno soils differ from Crevasse soils by having thin strata of finer textures in the C horizon. They have a coarser textured C horizon and are more excessively drained than Robinsonville soils.

Typical pedon of Bruno sandy loam, one-half mile southwest of Melton, 200 feet east of low water bridge on south bank of North Fork Coles Creek, sec. 2, T. 9 N., R. 1 E.:

A1—0 to 8 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; friable; common fine and medium roots; neutral; abrupt smooth boundary.

C1—8 to 13 inches; pale brown (10YR 6/3) loamy sand; single grained; loose; few fine roots; thin sandy loam layers; slightly acid; abrupt smooth boundary.

C2—13 to 19 inches; brown (10YR 5/3) sandy loam; massive; friable; thin loamy sand layers; slightly acid; abrupt smooth boundary.
C3—19 to 34 inches; brown (10YR 5/3) loamy fine sand; single grained; loose; thin sandy loam layers; neutral; gradual smooth boundary.
C4—34 to 60 inches; brown (10YR 5/3) sand; single grained; loose; thin sandy loam layers; neutral.

Reaction ranges from medium acid to neutral.

The A horizon ranges from yellowish brown to dark yellowish brown.

The C horizon is dark yellowish brown, light yellowish brown, brown, or pale brown. Textures are dominantly loamy sand or sand, but some pedons contain thin strata of finer texture.

Collins series

The Collins series consists of moderately well drained soils that formed in silty alluvium on flood plains. Slopes are 0 to 2 percent.

Collins soils are associated with Falaya and Leverett soils. Collins soils are browner and better drained than Falaya soils. Collins soils do not have the B horizon characteristic of Leverett soils.

Typical pedon of Collins silt loam, 6.5 miles east of Fayette city limits on Mississippi Highway 28, 2,000 feet southeast of church on field road, sec. 13, T. 10 N., R. 11 E.:

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam; few fine faint dark brown and pale brown mottles; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.
C1—5 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; common fine distinct pale brown and dark brown mottles; massive; bedding planes and thin horizontal strata; very friable; few patchy black stains between layers; strongly acid; gradual smooth boundary.
C2—15 to 25 inches; dark yellowish brown (10YR 4/4) silt loam; common medium distinct grayish brown (10YR 5/2) and few fine faint pale brown mottles; massive; bedding planes and thin horizontal strata; very friable; common patchy black and brown stains between layers; strongly acid; gradual smooth boundary.
C3—25 to 33 inches; mottled grayish brown (10YR 5/2) and dark yellowish brown (10YR 4/4) silt loam; massive; bedding planes and thin horizontal strata; very friable; few patchy black stains between layers; strongly acid; gradual smooth boundary.
C4—33 to 40 inches; mottled dark brown (7.5YR 4/4) and grayish brown (10YR 5/2) silt loam; massive; bedding planes and thin horizontal strata; very friable; few patchy black stains between layers; very strongly acid; gradual smooth boundary.
C5g—40 to 55 inches; light brownish gray (10YR 6/2) silt loam; massive; bedding planes and thin horizontal strata; friable; common patchy black and brown stains between layers; very strongly acid.

Reaction is strongly acid to very strongly acid in all horizons except for the surface layer in limed areas.

The A horizon is dark brown or dark yellowish brown.

The C1 horizon is dark brown, dark yellowish brown, or brown. The C2 horizon is similar in color to the C1 horizon except that it has few to common mottles of light brownish gray and grayish brown and in other shades of brown. The C3 and C4 horizons are mottled in shades of gray and brown. The C5g horizon ranges from light brownish gray to gray. Texture of the C horizon is silt loam. Clay content in the 10- to 40-inch control section ranges from 5 to 18 percent.

Commerce series

The Commerce series consists of somewhat poorly drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Commerce soils are associated with Bowdre, Bruin, and Convent soils. Commerce soils do not have the dark colored, clayey A and B horizons characteristic of Bowdre soils. Commerce soils are grayer and finer textured than Bruin soils. They are similar in color to Convent soils but finer textured.

Typical pedon of Commerce silt loam, 2.5 miles south of Rodney, 1 mile east of Ashland Landing, 0.5 mile south on field road, 45 feet west of field road, sec. 14, T. 10 N., R. 2 W.:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; moderately alkaline; abrupt smooth boundary.
B2—9 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; common fine distinct dark brown mottles; weak medium subangular blocky structure; firm; moderately alkaline; clear smooth boundary.
B3—18 to 31 inches; dark grayish brown (10YR 4/2) silty clay loam; many medium distinct dark gray (10YR 4/1) and dark brown (10YR 4/3) mottles; moderate medium subangular blocky structure; firm; neutral; gradual smooth boundary.
C1—31 to 46 inches; grayish brown (10YR 5/2) silt loam; many fine and medium distinct dark brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; moderately alkaline; gradual smooth boundary.
C2—46 to 65 inches; dark yellowish brown (10YR 4/4) very fine sandy loam; common medium distinct light brownish gray (10YR 6/2) mottles; massive; very friable; moderately alkaline.

Reaction ranges from neutral to moderately alkaline.

The Ap horizon is dark grayish brown or dark brown. In undisturbed areas is a thin, very dark gray A1 horizon 2 to 4 inches thick.

The B horizon is dark grayish brown and has few to many dark brown, dark gray, or light brownish gray mottles. Textures are silt loam or silty clay loam.

The C horizon is dark gray, grayish brown, dark grayish brown, or dark yellowish brown. Textures are silt loam, very fine sandy loam, or silty clay loam.

Convent series

The Convent series consists of somewhat poorly drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Convent soils are associated with Adler, Bruin, and Commerce soils. Convent soils are grayer and not so well drained as Adler soils. Convent soils are not so well drained as Bruin soils and are also stratified in the upper 20 inches. Convent soils are not so fine textured as, and are more stratified in the upper 20 inches than, Commerce soils.

Typical pedon of Convent silt loam, 5 miles south of Rodney, 50 feet west of gravel road, sec. 45, R. 1 W., T. 10 N.:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; few fine roots; mildly alkaline; abrupt smooth boundary.
C1—7 to 11 inches; grayish brown (10YR 5/2) silt loam; many medium distinct yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), and brown (10YR 5/3) mottles; massive, has horizontal bedding planes; very friable; mildly alkaline; gradual smooth boundary.
C2—11 to 30 inches; grayish brown (10YR 5/2) silt loam; common fine distinct yellowish brown and dark brown mottles; massive, has horizontal bedding planes; very friable; mildly alkaline; gradual smooth boundary.

C3—30 to 36 inches; grayish brown (2.5Y 5/2) silt loam; common medium distinct dark brown (10YR 4/3), yellowish brown (10YR 5/6), and dark yellowish brown (10YR 4/4) mottles; massive, has horizontal bedding planes; very friable; mildly alkaline; gradual smooth boundary.

C4—36 to 50 inches; grayish brown (2.5Y 5/2) silt loam; massive; very friable; mildly alkaline.

Reaction ranges from slightly acid to moderately alkaline in all horizons.

The A horizon is dark grayish brown, grayish brown, or dark brown.

The C horizons are grayish brown or dark grayish brown and have mottles in shades of gray and brown.

Crevasse series

The Crevasse series consists of excessively drained soils that formed in sandy alluvium on broad flood plains. Slopes are 0 to 3 percent.

Crevasse soils are associated with Bruno and Robinsonville soils. Crevasse soils are similar to Bruno soils in drainage but are not so stratified as Bruno soils. Crevasse soils are more coarsely textured and more excessively drained than Robinsonville soils.

Typical pedon of Crevasse sand, 1.5 miles south of Rodney, 3 miles west on oilfield road, 500 feet north of oilfield road, sec. 8, T. 10 N., R. 12 E.:

A1—0 to 3 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; few fine roots; moderately alkaline; abrupt smooth boundary.

C1—3 to 17 inches; grayish brown (10YR 5/2) sand; single grained; loose; few fine roots; moderately alkaline; gradual smooth boundary.

C2—17 to 60 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; moderately alkaline.

Reaction ranges from medium acid through moderately alkaline.

The A horizon is dark grayish brown, grayish brown, or brown.

The C horizons are dark grayish brown, grayish brown, brown, or light yellowish brown. Texture is sand or loamy sand.

Deerford series

The Deerford series consists of somewhat poorly drained soils that formed in silty material on broad stream terraces of low relief. Slopes are 0 to 2 percent.

Deerford soils are associated with Leverett and Rosebloom soils. Deerford soils are grayer and finer textured than the moderately well drained Leverett soils. They are browner and better drained than the poorly drained Rosebloom soils.

Typical pedon of Deerford silt, 3 miles west of Union Church, 5.5 miles northeast of Mississippi Highway 28, 1,500 feet east of Blue Goose Creek bridge, sec. 18, T. 9 N., R. 3 E.:

Ap—0 to 5 inches; brown (10YR 5/3) silt; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

A21g—5 to 15 inches; light gray (10YR 7/2) silt; many medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky and granular structure; friable; common fine roots; few fine black and brown concretions; medium acid; clear smooth boundary.

A22g—15 to 23 inches; light gray (10YR 7/2) silt loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; many fine pores and few very fine roots; faces of peds have silt coats; strongly acid; gradual irregular boundary.

B21tg—23 to 42 inches; mottled gray (10YR 6/1) and yellowish brown (10YR 5/6) ped interior, ped exterior is gray (10YR 6/1) silt loam; weak coarse prismatic structure that parts to weak medium subangular blocky; firm; dark gray patchy clay films on faces of peds and in pores; many fine and medium black and brown concretions; organic stains on faces of prisms; common tongues of gray silt loam between prisms; slightly acid; clear irregular boundary.

B22tg—42 to 67 inches; gray (10YR 5/1) silt loam; many coarse distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure that parts to weak medium subangular blocky; firm; patchy clay films on faces of peds; common fine and medium black concretions; common tongues of gray silt loam between prisms; neutral; clear irregular boundary.

The Ap horizon is brown, dark brown, dark grayish brown, or grayish brown. Reaction is medium acid through very strongly acid. The A2 horizon is light gray, light brownish gray, pale brown, or grayish brown. Texture is silt or silt loam. Reaction is slightly acid through very strongly acid.

The upper part of the Bt horizon has ped interiors of yellowish brown or dark yellowish brown and few to many gray and brown mottles. Ped exteriors are gray, grayish brown, or dark gray. The lower part of the Bt horizon has similar colors as the upper part or is light brownish gray, grayish brown, or dark grayish brown. Texture of the Bt horizon ranges from silt loam to silty clay loam. Gray silt tongues of material from the A2 horizon 1 to 2 inches wide occur between prisms in the Bt horizon. Reaction of the B horizon is strongly acid to slightly acid in the upper part and neutral to mildly alkaline in the lower part. Depth to horizons in which content of exchangeable sodium is 15 percent or more ranges from 16 to 32 inches.

Falaya series

The Falaya series consists of somewhat poorly drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Falaya soils are associated with Collins and Rosebloom soils. Falaya soils are grayer and more poorly drained than Collins soils. They are better drained and less clayey than Rosebloom soils.

Typical pedon of Falaya silt, 1 mile east of Dennis Crossroads, 2,000 feet north through pasture gate, 300 feet northwest of three brace posts in pasture fence, sec. 7, T. 9 N., R. 3 E.:

Ap—0 to 6 inches; dark brown (10YR 4/3) silt; common medium faint dark grayish brown (10YR 4/2) mottles; weak fine and medium granular structure; friable; many fine and very fine roots; medium acid; abrupt smooth boundary.

C1—6 to 14 inches; brown (10YR 5/3) silt; common medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine and very fine roots; few medium and fine black concretions; medium acid; gradual smooth boundary.

C2g—14 to 31 inches; light brownish gray (10YR 6/2) silt; common medium distinct dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; friable; many medium and fine black concretions; strongly acid; gradual smooth boundary.

A2gb&Bb—31 to 48 inches; light gray (10YR 6/1) silt loam; many medium and fine distinct yellowish brown (10YR 5/4) mottles; weak coarse prismatic structure that parts to weak medium subangular blocky; friable; few medium black concretions; strongly acid; gradual smooth boundary.

Bb—48 to 60 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure that parts to weak medium subangular blocky; friable; thin patchy clay films in pores and on some prism faces; strongly acid.

Reaction is strongly acid or very strongly throughout the soil except in the surface layer in limed areas.

The Ap horizon is dark brown or dark grayish brown.

The C1 horizon is brown or dark brown and has grayish mottles. The C2g horizon is light brownish gray, grayish brown, or dark grayish brown and has few to many yellow and brown mottles.

The A2gb&Bb horizon is light gray or light brownish gray and has few to many brownish mottles.

The Bb horizon is yellowish brown, dark yellowish brown, or light brownish gray and has few to many mottles of brown and gray.

Leverett series

The Leverett series consists of well drained soils that formed in silty material on broad terraces of low relief. Slopes are 0 to 2 percent.

Leverett soils are associated with Collins, Deerford, and Loring soils. Leverett soils do not have the stratification in the upper 20 inches that is characteristic of Collins soils. Leverett soils are better drained and less clayey than Deerford soils. Leverett soils are less clayey than Loring soils and do not have a fragipan.

Typical pedon of Leverett silt, 0 to 2 percent slopes, three-fourths mile southeast of Natchez Trace Parkway Ranger Station, 800 feet west of South Fork Coles Creek, sec. 18, T. 8 N., R. 1 W.:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt; common medium distinct dark brown (10YR 4/3) mottles; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

B1—7 to 23 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common very fine roots; thin silt coats on faces of peds; many fine pin holes and pores; strongly acid; gradual smooth boundary.

B21t—23 to 32 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; silt coats on faces of peds; few patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t&A'2—32 to 48 inches; mottled grayish brown (10YR 5/2), dark yellowish brown (10YR 4/4), and yellowish brown (10YR 5/8) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; thick gray silt coats around peds; few patchy clay films on faces of peds; about 20 percent by volume tongues of gray silt loam between prisms; very strongly acid; gradual irregular boundary.

B23t—48 to 70 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/4), and dark brown (10YR 4/3) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; thick gray silt coats around prisms; many fine and medium black and brown concretions; strongly acid.

Reaction is medium acid through very strongly acid.

The Ap horizon is dark grayish brown, dark brown, or brown.

The B1 horizon, where present, is dark brown or brown. The B21t horizon is dark yellowish brown, dark brown, or yellowish brown.

The B22t&A'2 horizon is mottled in shades of brown and gray. The B23t horizon is similar in color to the B22t&A'2 horizon. Gray silt tongues of the A'2 horizon extend into the lower part of the Bt horizon and occupy between 15 and 35 percent of the volume.

Lexington series

The Lexington series consists of well drained soils that formed in thin silty material over loamy material. These soils are on ridgetops and the upper part of the side slopes. Slopes are 15 to 20 percent.

Lexington soils are associated with Providence and Smithdale soils. Lexington and Providence soils are similar except that Lexington soils do not have a fragipan. Lexington soils are not so red and do not contain so much sand in the upper part of the solum as Smithdale soils.

Typical pedon of Lexington silt loam in an area of Smithdale-Lexington association, hilly, 0.5 mile southeast of Union Church, 2.5 miles south on gravel road, then 0.5 mile east on gravel road to Piedmont Church, 2 miles south to pipeline, 200 feet west of pipeline, sec. 36, T. 8 N., R. 4 E.:

A1—0 to 3 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B21t—3 to 21 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—21 to 25 inches; strong brown (7.5YR 5/6) silt loam; high sand content; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

IIB23t—25 to 36 inches; yellowish red (5YR 4/8) sandy loam; moderate medium subangular blocky structure; friable; most sand grains coated and bridged with clay and oxides; patchy clay films on faces of peds; few small skeletons; strongly acid; gradual smooth boundary.

IIB24t—36 to 65 inches; red (2.5YR 4/8) loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged; patchy clay films on faces of peds; strongly acid.

Reaction is medium acid or strongly acid.

The Ap horizon ranges from dark brown to dark yellowish brown.

The Bt horizons are dark brown, strong brown, or reddish brown. Textures are silt loam or silty clay loam. The IIBt horizon is strong brown, reddish brown, or red sandy clay loam, fine sandy loam, or sandy loam. Depth to the layer in which sand content is more than 15 percent ranges from 22 to 48 inches. The upper part of the B horizon has sand content of less than 15 percent. The amount of sand increases as depth increases.

Loring series

The Loring series consists of moderately well drained soils that formed in silty material on uplands. Slopes are 2 to 20 percent.

Loring soils are associated with Leverett, Lorman, Memphis, and Providence soils. Loring soils have a fragipan and are less clayey than Leverett soils. Loring soils have a fragipan and are not so clayey in the B horizon as Lorman soils. Loring soils are similar to Memphis soils, but Memphis soils to not have a fragipan. Loring and Providence soils are similar, but sand content throughout Loring soils is less than 15 percent.

Typical pedon of Loring silt loam, 2 to 5 percent slopes, eroded, 8 miles east of Fayette, 1 mile northeast of Mississippi Highway 28, 100 feet south of gravel road, sec. 4, T. 8 N., R. 3 E.:

Ap1—0 to 3 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; abrupt smooth boundary.

Ap2—3 to 5 inches; brown (10YR 5/3) silt loam; weak fine and medium granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

B21t—5 to 21 inches; dark brown (7.5YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; few fine roots in upper part; patchy clay films; very strongly acid; gradual smooth boundary.

B22t—21 to 27 inches; dark brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; patchy clay films; very strongly acid; gradual smooth boundary.

Bx1—27 to 33 inches; dark brown (7.5YR 4/4) silt loam; many medium distinct pale brown (10YR 6/3) and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; gray streaks between prisms; patchy clay films; few very fine dark brown concretions; few fine voids; very strongly acid; gradual smooth boundary.

Bx2—33 to 60 inches; dark brown (7.5YR 4/4) silt loam; many medium distinct gray (10YR 6/1), pale brown (10YR 6/3), and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm, compact and brittle; gray silt coats are common on prism faces; common fine voids; very strongly acid.

Reaction ranges from medium acid to very strongly acid throughout except for the surface layer in limed areas.

The A horizon is dark brown or brown.

The Bt horizon is dark brown or strong brown silt loam or silty clay loam. Clay content of the upper 20 inches of the B horizon ranges from 18 to 30 percent. The Bx horizon is dark brown and has mottles in shades of gray or yellowish brown, or it is mottled with these colors.

Lorman series

The Lorman series consists of moderately well drained, sloping to steep soils that formed in clayey sediments on uplands. Slopes are 12 to 35 percent.

Lorman soils are associated with Loring and Smithdale soils. Lorman soils have a more clayey B horizon than Loring soils and do not have the fragipan characteristic of Loring soils. Lorman soils have a more clayey B horizon and are not so well drained as Smithdale soils.

Typical pedon of Lorman silt loam in an area of Lorman-Loring association, hilly, 0.5 mile north of Union Church on Mississippi Highway 28, 3.5 miles west on gravel road to a point where road forks, 1,000 feet north on gravel road, 50 feet west into woods, NE1/4SE1/4 sec. 21, T. 9 N., R. 4 E.:

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common very fine and fine roots; slightly acid; clear wavy boundary.

A2—2 to 5 inches; brown (10YR 5/3) silt loam; weak fine granular and weak medium subangular blocky structure; friable; few very fine and fine roots; slightly acid; abrupt wavy boundary.

B21t—5 to 9 inches; yellowish red (5YR 4/6) clay; moderate fine and medium subangular blocky structure; firm, plastic and sticky; few very fine and fine roots concentrated along vertical faces of peds; thin patchy clay films or pressure faces on peds; few patchy silt coats on faces of peds; slightly acid; clear wavy boundary.

B22t—9 to 15 inches; yellowish red (5YR 5/6) clay; common medium distinct light red (2.5YR 6/6) and common fine and medium prominent light gray (10YR 7/2) and pale brown (10YR 6/3) mottles; moderate fine and medium subangular blocky structure; firm, very plastic and sticky; few very fine and fine roots; thin patchy clay films or pressure faces on peds; medium acid; gradual smooth boundary.

B23t—15 to 25 inches; yellowish brown (10YR 5/6) clay; many fine and medium distinct light brownish gray (10YR 6/2) and yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; firm, very plastic and sticky; thin patchy clay films or pressure faces on peds; few very fine and medium roots; medium acid; gradual smooth boundary.

B24t—25 to 33 inches; light brownish gray (10YR 6/2) clay; few fine distinct strong brown and many fine faint pale brown mottles; weak medium blocky structure; firm, very plastic and sticky; few medium roots; few patchy clay films or pressure faces on peds; few slickensides that do not intersect; medium acid; abrupt smooth boundary.

B3—33 to 47 inches; grayish brown (10YR 5/2) clay; weak medium blocky structure; firm, very plastic and sticky; few shiny grooves on faces of peds; few slickensides that do not intersect; few small siltstones; medium acid; abrupt smooth boundary.

C—47 to 65 inches; light brownish gray (10YR 6/2) silty clay; few fine distinct yellowish brown mottles in lower part; massive; firm; few to many siltstone fragments; neutral.

Reaction ranges from slightly acid to strongly acid in the A and Bt horizons, from neutral to strongly acid in the B3 horizon, and from medium acid to mildly alkaline in the C horizon.

The A1 horizon is very dark gray, very dark grayish brown, dark gray, dark grayish brown, brown, or dark brown. The A2 horizon is dark grayish brown, grayish brown, brown, pale brown, or yellowish brown.

The B21t horizon is reddish brown, yellowish red, or red and has no to common mottles in shades of brown and gray. The B22t and B23t horizons are similar in color to the B21t horizon except that they are also yellowish brown and strong brown and have few to common grayish mottles. The B24t horizon, where present, is grayish brown, light brownish gray, or pale brown and has mottles in shades of brown. The B3 horizon is grayish brown, light brownish gray, or gray and has no to many mottles in shades of red and brown. Texture of the B horizon is clay, silty clay, or silty clay loam. Clay content of the upper 20 inches of the B horizon ranges from 38 to 55 percent.

The C horizon has colors and textures similar to those of the B3 horizon. There are few to many medium to coarse fragments of siltstone. Some soils have a partially weathered, siltstone C horizon, and some have few to common concretions of calcium carbonate.

Memphis series

The Memphis series consists of well drained, nearly level to steep soils that formed in silty material on uplands. Slopes are 0 to 25 percent.

Memphis soils are associated with Loring and Natchez soils. Memphis soils are better drained than Loring soils and do not have the fragipan characteristic of the moderately well drained Loring soils. They are browner and finer textured in the B horizon than Natchez soils.

Typical pedon of Memphis silt loam, 5 to 8 percent slopes, eroded, in a 75-acre area of pasture, 3.8 miles east of Dennis Crossroads, 0.3 mile north of blacktop road on gravel road, 10 feet east of gravel road in pasture, sec. 6, T. 9 N., R. 3 E.:

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many very fine and fine roots; medium acid; abrupt smooth boundary.

B21t—7 to 24 inches; dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; continuous clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—24 to 40 inches; dark brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B3—40 to 60 inches; dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; thin patchy silt coats on faces of peds; medium acid.

Reaction ranges from medium acid to very strongly acid.

The A horizon is dark yellowish brown, dark brown, or dark grayish brown.

The B horizon is dark brown or strong brown silty clay loam or silt loam. Clay content of the upper 20 inches of the B horizon ranges from 20 to 32 percent.

Morganfield series

The Morganfield series consists of well drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Morganfield soils are associated with Adler, Natchez, and Robinsonville soils. Morganfield soils are browner and better drained than Adler soils. They differ from Natchez soils in that they have thin stratification and in that they do not have a B horizon. Morganfield soils have less sand throughout than Robinsonville soils.

Typical pedon of Morganfield silt, in a 100-acre area of cropland, 0.5 mile west of gravel road on bank of Dowds Creek, 1.5 miles south of Rodney, sec. 20, T. 10 N., R. 1 W.:

Ap—0 to 8 inches; dark brown (10YR 4/3) silt; weak fine granular structure; very friable; few medium and fine roots; medium acid; abrupt smooth boundary.

C1—8 to 16 inches; dark brown (10YR 4/3) silt; common fine faint dark yellowish brown mottles; massive; very friable; few fine roots; dark brown stains on faces of bedding planes; thin bedding planes; slightly acid; clear smooth boundary.

C2—16 to 23 inches; yellowish brown (10YR 5/4) silt; massive; very friable; few fine roots; dark brown stains on faces of bedding planes; thin pale brown bedding planes; mildly alkaline; gradual smooth boundary.

C3—23 to 36 inches; dark yellowish brown (10YR 4/4) silt; few fine distinct grayish brown mottles; massive; very friable; few dark brown stains on faces of bedding planes; mildly alkaline; clear smooth boundary.

C4—36 to 60 inches; yellowish brown (10YR 5/4) silt; common medium distinct grayish brown (10YR 5/2) and dark yellowish brown (10YR 4/4) mottles; massive; very friable; mildly alkaline.

Reaction ranges from slightly acid to mildly alkaline throughout the soil.

The A horizon is dark brown, brown, or dark grayish brown.

The C horizons are brown, dark brown, dark yellowish brown, or yellowish brown. In some pedons they have thin stratified layers of pale brown, brown, or dark brown. In some areas the C horizon has few to common grayish brown or light brownish gray mottles below a depth of 20 inches. Texture of the C horizon ranges from silt to silt loam. Some areas have a buried A horizon below a depth of 20 inches.

Natchez series

The Natchez series consists of well drained, steep soils that formed in silty material on uplands. Slopes are 17 to 45 percent.

Natchez soils are associated with Memphis and Morganfield soils. Natchez soils are not so acid as Memphis soils. They have a B horizon, and Morganfield soils do not.

Typical pedon of Natchez silt loam, in an area of Memphis-Natchez association, hilly, 3.5 miles southwest of Church Hill, 1.5 miles north on oilfield road, sec. 30, T. 9 N., R. 2 W.:

A1—0 to 3 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common fine and medium roots; medium acid; abrupt smooth boundary.

B2—3 to 16 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; very friable; common fine and medium roots; slightly acid; gradual smooth boundary.

B3—16 to 27 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium and coarse subangular blocky structure; very friable; few fine and medium roots; neutral; gradual smooth boundary.

C—27 to 72 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; few fine roots; neutral.

Reaction ranges from medium acid to moderately alkaline.

The A1 horizon is dark brown or dark grayish brown.

The B horizon is brown or dark yellowish brown silt loam or silt.

The C horizon is similar in color and texture to the B horizon.

Providence series

The Providence series consists of moderately well drained soils that formed in a thin mantle of silty material on uplands. Slopes are 5 to 12 percent.

Providence soils are associated with Lexington, Loring, and Smithdale soils. Providence and Lexington soils are similar in color and texture, but Providence soils have a fragipan and are not so well drained as Lexington soils. Providence and Loring soils are similar except that Providence soils are underlain by loamy material at a depth of less than 48 inches. Both soils have a fragipan and are more silty in the upper part of the B horizon than Smithdale soils.

Typical pedon of Providence silt loam, 5 to 8 percent slopes, eroded, in a 15-acre area of pasture, 6.1 miles southwest of Union Church on State-Aid blacktopped road, sec. 25, T. 8 N., R. 3 E.:

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

B21t—7 to 20 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; continuous clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—20 to 30 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of peds; few dark brown concretions; common fine voids increasing with depth; strongly acid; clear smooth boundary.

IIBx1—30 to 56 inches; strong brown (7.5YR 5/6) silt loam; noticeable increase in sand; common medium distinct light gray (10YR 6/1) and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; common fine voids; few thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

IIBx2—56 to 66 inches; reddish brown (5YR 4/4) sandy loam; common medium distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; few thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

IIB23t—66 to 70 inches; yellowish red (5YR 5/8) sandy loam; common medium distinct very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; slightly firm; few thin patchy clay films on faces of peds; strongly acid.

Reaction is strongly acid or very strongly acid throughout the soil except for the surface layer in limed areas.

The A horizon is dark brown or brown.

The Bt horizon is dark brown or strong brown silty clay loam or silt loam. The IIBx1 horizon is strong brown or yellowish brown and has light brownish gray, brown, and yellowish brown mottles. Textures are silt loam or fine sandy loam. The IIBx2 horizon is dark brown, reddish brown, or yellowish red and has yellowish brown and light brownish gray mottles. Textures are silt loam, loam, sandy loam, or sandy clay loam. The IIB23t horizon is yellowish red or reddish brown and has very pale brown and yellowish red mottles. Textures are loam, sandy loam, or sandy clay loam. Clay content of the upper 20 inches of the B horizon ranges from 20 to 30 percent.

Robinsonville series

The Robinsonville series consists of well drained soils that formed in loamy alluvium on broad flood plains. Slopes are 0 to 2 percent.

Robinsonville soils are associated with Bruin, Bruno, Crevasse, and Morganfield soils. Robinsonville soils are better drained than Bruno soils and are coarser textured throughout than Bruin and Morganfield soils. Robinsonville soils are not so sandy in the C horizon as Bruno and Crevasse soils.

Representative profile of Robinsonville very fine sandy loam, 2.5 miles south of Rodney, 8 miles west on gravel road toward Ashland, 350 feet southeast of powerline, sec. 7, T. 10 N., R. 11 E.:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) very fine sandy loam; weak fine granular structure; very friable; common fine roots; moderately alkaline; abrupt smooth boundary.

C1—8 to 17 inches; brown (10YR 5/3) fine sandy loam; massive; very friable; bedding planes; few fine roots; moderately alkaline; clear smooth boundary.

C2—17 to 21 inches; dark brown (10YR 4/3) silt loam; massive; friable; bedding planes; moderately alkaline; abrupt smooth boundary.

C3—21 to 28 inches; brown (10YR 5/3) fine sandy loam; massive; very friable; bedding planes; moderately alkaline; gradual smooth boundary.

C4—28 to 60 inches; dark brown (10YR 4/3) very fine sandy loam; few fine distinct dark yellowish brown and light brownish gray mottles; massive; friable; moderately alkaline.

Reaction is mildly alkaline to moderately alkaline.

The A horizon is dark grayish brown or dark brown.

The C horizon is dark brown or brown. The C horizon is stratified with fine sandy loam, loamy fine sand, very fine sandy loam, or silt loam. Clay content is less than 18 percent in the control section.

Rosebloom series

The Rosebloom series consists of poorly drained soils that formed in silty alluvium on broad flood plains. Slopes are 0 to 2 percent.

Rosebloom soils are associated with Deerford and Falaya soils. They have grayer colors than Deerford soils, are more poorly drained, and do not have the high sodium content characteristic of Deerford soils. Rosebloom soils are finer textured and have grayer colors than the somewhat poorly drained Falaya soils.

Typical pedon of Rosebloom silt loam, 11 miles east of Harriston, 1.5 miles north on gravel road, 1.5 miles northeast on field road, 655 feet north of field road, sec. 31, T. 10 N., R. 4 E.:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B21g—5 to 20 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; friable; few fine roots; many fine pores; common fine and medium brown and black concretions; very strongly acid; gradual wavy boundary.

B22g—20 to 36 inches; gray (10YR 5/1) silt loam; few fine distinct dark yellowish brown mottles; weak medium subangular blocky structure; friable; few fine black and brown concretions; very strongly acid; gradual wavy boundary.

B23g—36 to 48 inches; dark gray (10YR 4/1) silty clay loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; firm, plastic; common fine and medium black and brown concretions; strongly acid; gradual wavy boundary.

B3—48 to 56 inches; mottled dark yellowish brown (10YR 4/4) and strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; firm, plastic; slightly acid; gradual wavy boundary.

C—56 to 60 inches; mottled light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) silt loam; massive; friable; neutral.

Reaction is strongly acid or very strongly acid in the A horizon and in the upper part of the B2 horizon but ranges to slightly acid or neutral in the lower part of the profile.

The Ap horizon is dark grayish brown or dark brown.

The B horizon is gray, dark gray, or light brownish gray and has few to common mottles in shades of brown. Texture of the B horizon is silt loam or silty clay loam. Clay content ranges from 18 to 30 percent.

The Rosebloom soils in this county have a pH higher than 5.5 in the lower part of the B horizon. This is outside the range defined for the Rosebloom series. In addition, the colors in the B horizon have higher chroma and redder hue than described for the series.

Sharkey series

The Sharkey series consists of poorly drained soils that formed in thick beds of clay on broad flood plains. Slopes are 0 to 2 percent.

Sharkey soils are associated with Bowdre and Tunica soils. Sharkey soils are poorly drained and are more clayey throughout than the somewhat poorly drained Bowdre soils. Sharkey soils have a thicker B horizon than Tunica soils.

Typical pedon of Sharkey clay, 2.5 miles south of Rodney, 10 miles west toward Ashland, 1 mile south on oil well road, 35 feet west of oil well, sec. 14, T. 10 N., R. 2 W.:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) clay; few fine faint dark brown mottles; weak fine subangular blocky structure; firm, very plastic; neutral; abrupt smooth boundary.

B21g—5 to 18 inches; dark gray (10YR 4/1) clay; common fine distinct dark brown and dark yellowish brown mottles; moderate medium subangular blocky and angular blocky structure; firm, very plastic; ped faces have shiny pressure faces; neutral; gradual smooth boundary.

B22g—18 to 28 inches; dark gray (10YR 4/1) clay; few fine distinct dark brown mottles; moderate medium subangular blocky structure; firm, very plastic; ped faces have few shiny pressure faces; mildly alkaline; gradual smooth boundary.

B23g—28 to 50 inches; dark gray (10YR 4/1) clay; common fine distinct dark brown and very dark grayish brown mottles; weak medium subangular blocky structure; firm, very plastic; few slickensides that do not intersect; mildly alkaline.

Reaction ranges from slightly acid to moderately alkaline.

The A horizon is very dark grayish brown, very dark gray, or dark gray.

The B horizon is dark gray, olive gray, or gray and has very dark brown, dark brown, dark yellowish brown, or very dark grayish brown mottles.

Smithdale series

The Smithdale series consists of well drained, steep soils that formed in loamy material on uplands. Slopes are 15 to 35 percent.

Smithdale soils are associated with Lexington, Lorman, and Providence soils. Smithdale soils are redder and have more sand in the upper part of the soil than Lexington soils. They are not so clayey in the B horizon as Lorman soils. Providence soils are not so red as Smithdale soils, are more silty, and have a fragipan.

Typical pedon of Smithdale fine sandy loam, in an area of Smithdale-Lexington association, hilly, 0.5 mile southwest of Union Church, 2.5 miles south on gravel road, 0.5 mile east on gravel road, 2 miles south on road to pipeline, 400 feet east of pipeline, sec. 36, T. 8 N., R. 4 E.:

A1—0 to 3 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; strongly acid; clear smooth boundary.

A2—3 to 15 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; friable; strongly acid; abrupt smooth boundary.

B21t—15 to 28 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay and oxides; patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—28 to 52 inches; red (2.5YR 4/8) loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay and oxides; few pockets of uncoated sand grains; strongly acid; gradual smooth boundary.

B23t—52 to 70 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay and oxides; few pockets of uncoated sand grains; strongly acid.

Reaction is strongly acid or very strongly acid.

The A1 horizon is dark brown or dark grayish brown. The A2 horizon is yellowish brown, light yellowish brown, or brown.

The Bt horizons are red or yellowish red. Texture is sandy clay loam or loam in the upper part of the Bt horizon and loam or sandy loam in the lower part.

Tunica series

The Tunica series consists of poorly drained soils that formed in clayey sediments over silty material on broad flood plains. Slopes are 0 to 3 percent.

Tunica soils are associated with Bowdre and Sharkey soils. Tunica soils are more poorly drained and have thicker clayey horizons than Bowdre soils. Tunica soils are similar to Sharkey soils in drainage and color except that the clayey solum is thinner.

Typical pedon of Tunica silty clay, 2.5 miles south of Rodney, 9 miles west to bridge, 3,000 feet south of bridge, sec. 9, T. 10 N., R. 2 W.:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay; weak fine subangular blocky structure; firm; plastic; neutral; abrupt smooth boundary.

B21g—6 to 13 inches; dark gray (10YR 4/1) clay; common fine distinct dark yellowish brown and faint very dark grayish brown mottles; weak medium subangular blocky structure; firm, plastic; neutral; gradual smooth boundary.

B22g—13 to 21 inches; dark gray (10YR 4/1) clay; common fine distinct dark yellowish brown mottles; weak medium subangular blocky structure; firm, plastic; few slickensides that do not intersect; neutral; gradual smooth boundary.

B23g—21 to 28 inches; dark gray (10YR 4/1) clay; few fine distinct dark yellowish brown mottles; weak medium subangular blocky structure; firm, plastic; few slickensides that do not intersect; mildly alkaline; clear smooth boundary.

IIC—28 to 55 inches; dark grayish brown (10YR 4/2) silt loam; many medium faint and distinct dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) mottles; massive; friable; mildly alkaline.

Reaction ranges from slightly acid to mildly alkaline.

The A horizon is very dark grayish brown or very dark gray.

The B horizon is dark gray or gray and is mottled in shades of gray and brown. Textures of the B horizon are silty clay or clay.

The IIC horizon is light brownish gray, grayish brown, gray, or dark grayish brown, or it is mottled in shades of gray and brown. Textures of the IIC horizon are silt loam, silty clay loam, or fine sandy loam. Depth to the contrasting IIC horizon ranges from 20 to 36 inches.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*12*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 19, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a

prefix that suggests something about the properties of the soil. An example is Fluvaquents (*Fluv*, meaning recent alluvial horizons, plus *aquent*, the suborder of Entisols that have an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine-silty, mixed, acid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Formation of the soils

In this section the five major factors of soil formation are described in terms of their effect on the development of the soils in Jefferson County. The processes that cause the differentiation of soil horizons are explained.

Factors of soil formation

Soil is produced by the interaction of five major factors of soil formation. These factors are parent material (4), climate, living organisms (especially vegetation), relief, and time. All five of these factors take part in the formation of every soil, but the influence of each varies from one place to another. If a factor such as parent material or time is different, the soil that forms is different.

Parent material

Parent material, the unconsolidated mass from which soil forms, has much to do with the chemical and mineral composition of the soil. The parent material of the soils in Jefferson County is alluvium, loess, or marine deposits.

Soils formed in alluvium make up about 21 percent of the county. The soils that formed on the alluvial plain of the Mississippi River differ widely because the river-transported sediments contain many kinds of minerals. These sediments range from coarse sand to clay. Crevasse sand, for example, formed in recently deposited, coarse textured alluvium. The alluvium deposited by the tributaries of the Mississippi River is fairly uniform in texture and is dominantly silt loam. Adler and Convent soils formed in this kind of material.

Most of the alluvium was deposited by rivers or smaller streams when the waters were in flood stage. When a river or smaller stream overflows, water moves rapidly and carries the coarse soil particles, such as sand, only a short distance before depositing them to form low ridges and natural levees near the streams. The soils that formed on these ridges and levees are brownish, permeable, and moderately well drained or well drained. As the water spreads over the flood plains and its speed decreases, the medium-sized soil particles are deposited. These particles are dominantly silts generally mixed with fine sand and clay, and from them moderately permeable, somewhat poorly drained soils formed. Finally, clays are deposited when the flood has receded and water is left standing in the low areas. The soils that formed in these clays are very slowly permeable and poorly drained.

The soils formed in a mantle of loess cover about 71 percent of the county. The mantle is thick and calcareous where it borders the flood plain of the Mississippi River. The mantle is thinner and more acid in the eastern part of the county. Where loess is unweathered, it is uniform in physical and chemical composition and is silty.

Most soil scientists believe that the loess in Jefferson County was first deposited on the flood plains and later redeposited by wind on the older formations of the Coastal Plain. These deposits varied in depth. Although the deposits originally formed a comparatively level plain, this plain has been highly dissected and is nearly level to steep. The soils that formed on it are dominantly acid. Memphis and Loring soils formed in this type of material.

The soils formed in marine deposits occupy about 8 percent of the county. These deposits consist of sand, silt, and clay laid down by the sea. The coarser particles, or sandy material, were deposited by shallow, moving water near the shoreline. The soils that formed in sandy material are permeable and well drained. Clay was deposited by quieter, much deeper water. Soils formed in this material are slowly permeable and moderately well drained.

Climate

The humid warm-temperate climate of Jefferson County is characteristic of the southeastern part of the United States. This type of climate, like any other, is a genetic factor that affects the physical, chemical, and biological relationships in soils, primarily through precipitation and temperature.

Water dissolves minerals, supports biological activity, and transports minerals and organic residues in the soil profile. The amount of water that percolates through the soil depends mainly on rainfall, relative humidity, and the length of the frost-free period. Downward percolation is also affected by physiographic position and by soil permeability.

Temperature and precipitation influence the kinds and growth of organisms in and on a soil. They also affect the speed of physical and chemical reactions. In Jefferson County these reactions are influenced by the warm, moist weather that prevails most of the year. Because precipitation is plentiful in the county, the soils are subject to leaching. Freezing and thawing have had little effect on weathering and on the soil-forming processes.

Living organisms

Plants, animals, insects, bacteria, and fungi affect the formation of soils. Among the changes caused by these living organisms are gains in organic matter and nutrients and changes in structure and porosity. The kinds and numbers of plants and animals that live on and in the soil are determined by the climate and partly by the parent material.

Vegetation, dominantly hardwood trees, has affected soil formation in Jefferson County more than other living organisms have. Mainly because of this forest cover and the warm climate, many soils in the county are brownish and have low to medium content of organic matter.

Earthworms and other small invertebrates are most active in the surface layer, where they slowly but continuously mix the soil. Rodents and other vertebrates are also active. Not much is known about fungi and other micro-organisms in the soils of Jefferson County, but it is known that these micro-organisms aid in weathering, decomposing organic matter, and fixing nitrogen in the soils.

Relief

Relief affects soil formation through its influence on soil drainage, erosion, plant cover, and soil temperature. The relief of Jefferson County ranges from nearly level on the flood plains to very steep on the uplands. In only a few places on the flood plains are differences in elevation more than 20 feet within a square mile, but local differences of 40 to 60 feet are common in areas of steep hills.

The flatness of the flood plains has much to do with the slow drainage of many of the soils. Water moves into the main channels with difficulty, especially from the slackwater areas of clay. It also moves slowly through the clayey soils and increases the problem of drainage. Erosion is very slight on the nearly level soils on flood plains.

The steep soils in the uplands have rapid runoff. Water moves rapidly from the steep soils into the main channels and carries with it much of the soil material. Because of this rapid runoff, erosion is severe and gullies form.

Time

Generally, a long time is required for the formation of soils that have distinct horizons. The length of time that the parent material has been in place is commonly reflected in the degree that the soil profile has developed.

The soils in Jefferson County range from young to old. The young soils have developed very little, and the older soils have well-defined horizons. Most of the soils on the flood plains are young and still receive occasional deposits. In these soils horizon differentation is slight. Except for darkening of the surface layer, these soils have retained most of the characteristics of their parent material. The silty soils on uplands are generally much older than soils on flood plains. These silty soils have a distinct, acid subsoil of strong brown silty clay loam that bears little resemblance to the original parent material. Through time, however, a soil profile, especially one in steep soils, can be altered by geologic erosion.

Processes of soil horizon differentiation

Several processes were involved in the formation of horizons in the soils of Jefferson County. These processes are (1) the accumulation of organic matter, (2) the leaching of carbonates and bases, (3) the reduction and transfer of iron, and (4) the formation and translocation of silicate clay materials. In most soils more than one of these processes have been active in the development of horizons.

The accumulation of organic matter in the upper part of the profile is important because this accumulation results in the formation of an A1 horizon. The soils of this county range from medium to very low in content of organic matter.

Carbonates and bases have been leached from most of the soils in this county. This leaching has contributed to the development of horizons. Soil scientists generally agree that leaching of bases from the upper horizons of a soil generally precedes the translocation of silicate clay minerals. Most of the soils in this county are moderately to strongly leached.

The reduction and transfer of iron, a process called gleying, is evident in the poorly drained soils of the county. The gleying is indicated by the grayish color of horizons below the surface layer. Segregation of iron is indicated in some horizons by reddish brown mottles and concretions.

In some soils of Jefferson County, the translocation of clay minerals has contributed to horizon development. The eluviated A2 horizon, above the B horizon, is lower in clay content and generally lighter in color than the B horizon. The B horizon commonly has accumulations of clay (clay films) in pores and on ped surfaces. Soils of this kind were probably leached of carbonates and soluble salts to a considerable extent before translocation of silicate clays took place.

The leaching of bases and the subsequent translocation of silicate clays are among the more important processes of horizon differentiation that have taken place in the soils of Jefferson County. In Memphis soils and other soils, translocated silicate clays have accumulated in the B horizon in the form of clay films.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single mapping unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	More than 9

Base saturation. The degree to which material having base exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Complex, soil. A mapping unit of two or more kinds of soil occurring in such an intricate pattern that they cannot be shown separately on a soil map at the selected scale of mapping and publication.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is 40 or 80 inches (1 or 2 meters).

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Favorable. Favorable soil features for the specified use.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured (heavy textured) soil. Sandy clay, silty clay, and clay.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May,* for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. A soil having one or more neutral gray horizons as a result of waterlogging and lack of oxygen. The term "gleyed" also designates gray horizons and horizons having yellow and gray mottles as a result of intermittent waterlogging.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. Inadequate strength for supporting loads.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, com-*

mon, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three single variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characteristic that affects management. These differences are too small to justify separate series.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Piping. Moving water of subsurface tunnels or pipelike cavities in the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from a semisolid to a plastic state.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots. See Root zone.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineralogical and chemical composition.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake. The slow movement of water into the soil.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly

to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea. A stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter. used to topdress roadbanks, lawns, and gardens.

Unstable fill. Risk of caving or sloughing in banks of fill material.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Illustrations

Figure 1.—This deep road cut is in a wooded area of the Memphis-Natchez map unit. Note the root penetration in these deep, silty soils.

Figure 2.—Eastern cottonwood plantation on Commerce silt loam. The site index for eastern cottonwood on this soil is 120.

Figure 3.—Ryegrass-ball clover pasture on Loring silt loam, 2 to 5 percent slopes, eroded. Mixed loblolly pines and hardwoods are on this soil in the background.

Figure 4.—In the foreground is common bermudagrass on Memphis silt loam, 12 to 25 percent slopes, severely eroded. In the background is woodland on the Memphis-Natchez association, hilly.

Figure 5.—Sweetgum plantation on Robinsonville very fine sandy loam. Sweetgum on this site has a site index of 105.

Figure 6.—This farm pond is used for livestock water, fishing, and recreation. The trees in the background are on Memphis silt loam, 8 to 12 percent slopes, eroded.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Recorded in the period 1931-60 at Natchez, Mississippi]

Month	Temperature					Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Maximum temperature lower than--	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 1 inch or more	Average snowfall
	F	F	F	F	F	In	In	In		In
January----	61.7	40.2	50.9	79	22	5.52	2.7	9.5	2	0.2
February---	64.3	43.0	53.6	79	24	4.94	2.0	8.6	2	.7
March------	70.6	47.4	59.0	82	30	6.24	3.7	9.2	2	.2
April------	78.1	54.9	66.5	87	41	5.08	1.9	9.4	2	0
May--------	84.6	62.3	73.4	92	55	5.98	2.5	12.0	2	0
June-------	90.9	69.3	80.1	96	61	4.03	1.1	7.5	1	0
July-------	92.4	71.6	82.0	98	69	4.18	1.5	7.5	1	0
August-----	92.7	71.0	81.8	100	66	3.86	1.6	7.4	1	0
September--	88.5	66.0	77.2	97	54	2.83	.6	6.5	1	0
October----	80.4	55.5	67.9	91	42	2.21	.6	4.3	1	0
November---	69.2	45.1	57.1	82	28	4.46	1.4	8.4	1	0
December---	62.6	41.7	52.1	76	27	5.64	3.1	9.5	2	0
Year-----	78.0	55.7	66.8	[1]99	[2]17	54.97	44.0	67.7	18	1.1

[1]Average annual highest temperature.

[2]Average annual lowest temperature.

TABLE 2.--LOW TEMPERATURES IN SPRING AND FALL

[Recorded in the period 1931-60 at Natchez, Mississippi. Data have been adjusted to account for years in which temperatures were not so low as those shown in the table]

Probability	Temperature				
	24 F or lower	28 F or lower	32 F or lower	36 F or lower	40 F or lower
Last freezing temperature in spring:					
1 year in 10 later than--	February 26	March 12	April 1	April 17	April 25
2 years in 10 later than--	February 19	March 5	March 25	April 10	April 18
5 years in 10 later than--	February 5	February 19	March 11	March 27	April 14
First freezing temperature in fall:					
1 year in 10 earlier than--	November 29	November 15	October 29	October 17	October 11
2 years in 10 earlier than--	December 5	November 21	November 4	October 23	October 17
5 years in 10 earlier than--	December 16	December 2	November 15	November 3	October 28

TABLE 3.--POTENTIALS AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR SPECIFIED USES

Map unit	Extent of area	Cultivated farm crops	Pasture and hay	Woodland	Urban uses	Intensiv recreati areas
	Pct					
1. Sharkey-Bowdre-Tunica---	7.6	Medium: floods, wetness.	Medium: floods, wetness.	Moderately high	Low: floods, shrink-swell.	Low: floods.
2. Bruin-Robinsonville-Crevasse.	3.0	Medium: floods.	Medium: floods.	Very high------	Low: floods.	Low: floods.
3. Morganfield-Adler-Convent.	4.7	Medium: floods.	Medium: floods.	Very high------	Low: floods.	Low: floods.
4. Falaya-Collins-Deerford.	7.4	Medium: floods.	Medium: floods.	Very high------	Low: floods.	Low: floods.
5. Memphis-Natchez---------	32.4	Low: erosion.	Medium: slope.	Very high------	Low: slope.	Low: slope.
6. Memphis-Loring-Providence.	11.0	Medium: slope, erosion.	Medium: slope.	Very high------	Medium: slope.	Medium: slope.
7. Lorman-Loring-----------	11.8	Low: erosion.	Medium: slope.	High-----------	Low: slope, shrink-swell.	Low: slope, shrink-swe
8. Smithdale-Lexington-----	14.8	Low: erosion.	Medium: slope.	High-----------	Low: slope.	Low: slope.
9. Memphis-Morganfield-----	7.3	Low: erosion.	Medium: slope.	Very high------	Low: slope, floods.	Low: slope.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ad	Adler silt loam	5,550	1.6
Bd	Bowdre silty clay	3,220	1.0
Bn	Bruin silt loam	1,555	0.5
BR	Bruin-Robinsonville association	3,835	1.1
Bu	Bruno sandy loam	2,200	0.7
Ca	Collins silt loam	7,500	2.3
Cm	Commerce silt loam	1,215	0.4
Co	Convent silt loam	3,895	1.1
Cv	Crevasse sand	1,710	0.5
De	Deerford silt	6,310	1.9
Fa	Falaya silt	10,075	3.0
LeA	Leverett silt, 0 to 2 percent slopes	2,200	0.7
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	3,340	1.0
LoC2	Loring silt loam, 5 to 8 percent slopes, eroded	6,445	1.9
LoD2	Loring silt loam, 8 to 12 percent slopes, eroded	935	0.3
LR	Lorman-Loring association, hilly	32,740	9.8
MeA	Memphis silt loam, 0 to 2 percent slopes	3,505	1.1
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded	7,655	2.3
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded	19,595	5.9
MeD2	Memphis silt loam, 8 to 12 percent slopes, eroded	6,680	2.0
MeD3	Memphis silt loam, 8 to 12 percent slopes, severely eroded	3,630	1.1
MeF3	Memphis silt loam, 12 to 25 percent slopes, severely eroded	5,870	1.8
MM	Memphis-Morganfield association, hilly	18,505	5.6
MN	Memphis-Natchez association, hilly	89,815	26.9
Mo	Morganfield silt	6,350	1.9
Pt	Pits	70	*
PvC2	Providence silt loam, 5 to 8 percent slopes, eroded	2,635	0.8
PvD2	Providence silt loam, 8 to 12 percent slopes, eroded	1,760	0.5
Rb	Robinsonville very fine sandy loam	740	0.2
Ro	Rosebloom silt loam	895	0.3
Sa	Sharkey clay	3,235	1.0
SH	Sharkey association	17,255	5.2
SmF	Smithdale-Lexington complex, 15 to 30 percent slopes	665	0.2
SX	Smithdale-Lexington association, hilly	48,015	14.4
Tu	Tunica silty clay	1,900	0.6
	Water	1,300	0.4
	Total	332,800	100.0

* Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[All yields were estimated for a high level of management in 1975. Absence of a yield figure indicates the crop is seldom grown or is not suited]

Soil name and map symbol	Cotton lint	Corn	Soybeans	Improved bermuda-grass	Common bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
Ad------------------------ Adler	800	100	35	12.0	---	---	9.5
Bd------------------------ Bowdre	---	---	35	9.5	6.5	---	---
Bn------------------------ Bruin	---	---	35	15.5	8.5	---	---
BR**:							
Bruin--------------------	---	---	---	---	---	---	---
Robinsonville------------	---	---	---	---	---	---	---
Bu------------------------ Bruno	---	---	---	---	---	---	---
Ca------------------------ Collins	800	110	40	12	---	---	10
Cm------------------------ Commerce	---	---	30	---	7.0	---	---
Co------------------------ Convent	---	---	35	15.5	7.5	---	---
Cv------------------------ Crevasse	---	---	---	---	---	---	---
De------------------------ Deerford	475	---	30	---	6.5	7.5	---
Fa------------------------ Falaya	750	100	40	12.0	10.5	8.0	8.5
LeA----------------------- Leverett	800	90	40	12.0	8.0	8.5	9.0
LoB2---------------------- Loring	700	90	30	9.5	7.5	8.0	8.0
LoC2---------------------- Loring	650	70	25	9.0	7.0	8.0	7.5
LoD2---------------------- Loring	500	60	20	8.5	6.0	7.0	7.0
LR**:							
Lorman-------------------	---	---	---	---	---	---	---
Loring-------------------	---	---	---	---	---	---	---
MeA----------------------- Memphis	800	95	40	10.5	8.0	8.5	8.5
MeB2---------------------- Memphis	750	90	35	10.0	7.5	8.0	8.5
MeC2---------------------- Memphis	700	80	30	9.0	7.0	8.0	7.5
MeD2---------------------- Memphis	600	65	25	8.0	6.0	7.0	7.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Cotton lint	Corn	Soybeans	Improved bermuda-grass	Common bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
MeD3 Memphis	---	---	---	6.5	5.5	6.0	---
MeF3 Memphis	---	---	---	6.0	4.5	---	---
MM**:							
Memphis	---	---	---	---	---	---	---
Morganfield	---	---	---	---	5.0	5.0	---
MN**:							
Memphis	---	---	---	---	---	---	---
Natchez	---	---	---	---	5.0	5.0	---
Mo Morganfield	950	115	45	12.0	9.0	9.5	10.0
Pt** Pits	---	---	---	---	---	---	---
PvC2 Providence	650	70	30	9.0	7.0	8.0	7.5
PvD2 Providence	---	---	---	8.5	6.0	8.0	---
Rb Robinsonville	825	115	40	12.0	9.0	---	10.0
Ro Rosebloom	550	60	30	8.0	---	---	8.0
Sa Sharkey	---	---	30	---	6.0	---	---
SH** Sharkey	---	---	---	---	5.0	---	---
SmF Smithdale	---	---	---	---	---	---	---
SX**:							
Smithdale	---	---	---	---	---	---	---
Lexington	---	---	---	---	---	---	---
Tu Tunica	---	---	35	8.5	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for a period of 30 days.
** See map unit description for the composition and behavior of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas excluded. Absence of an entry means no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	5,705	---	---	---	---
II	41,210	10,995	30,215	---	---
III	35,880	28,675	7,205	---	---
IV	26,985	9,375	17,610	---	---
V	24,423	---	24,423	---	---
VI	48,761	48,761	---	---	---
VII	124,566	124,566	---	---	---
VIII	---	---	---	---	---
Total	307,530	222,372	79,453	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed in this table. Absence of an entry in a column means the information was not available]

Soil name and map symbol	Woodland suitability group	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Trees to plant
Ad: Adler	1o4	Slight	Slight	Slight	Moderate	Green ash	95	Green ash, eastern cottonwood, sweetgum, American sycamore.
						Eastern cottonwood	120	
						Water oak	100	
						Willow oak	100	
						Sweetgum	100	
						American sycamore	115	
Bd: Bowdre	2w6	Slight	Severe	Moderate	Moderate	Cherrybark oak	90	Eastern cottonwood, sweetgum, American sycamore.
						Eastern cottonwood	110	
						Sweetgum	95	
						Water oak	95	
Bn: Bruin	1o4	Slight	Slight	Slight	Moderate	Green ash	---	Eastern cottonwood, sweetgum, American sycamore.
						Eastern cottonwood	105	
						Pecan	---	
						Sweetgum	105	
						American sycamore	---	
BR*:								
Bruin	1o4	Slight	Slight	Slight	Moderate	Green ash	---	Eastern cottonwood, sweetgum, American sycamore.
						Eastern cottonwood	105	
						Pecan	---	
						Sweetgum	105	
						American sycamore	---	
Robinsonville	1w5	Slight	Moderate	Moderate	Moderate	Eastern cottonwood	110	Eastern cottonwood, sweetgum, American sycamore.
						Green ash	85	
						Sweetgum	105	
						American sycamore	115	
Bu: Bruno	2s5	Slight	Moderate	Moderate	Moderate	Cherrybark oak	116	Cherrybark oak, Shumard oak, chestnut oak, willow oak, sweetgum, yellow-poplar.
						Water oak	105	
						Sweetgum	110	
						Willow oak	88	
						River birch	---	
Ca: Collins	1w8	Slight	Moderate	Moderate	Severe	Shumard oak	105	Shumard oak, loblolly pine, sweetgum, yellow-poplar.
						Loblolly pine	95	
						Sweetgum	105	
						Yellow-poplar	110	
Cm: Commerce	1w5	Slight	Moderate	Slight	Moderate	Green ash	80	Eastern cottonwood, American sycamore.
						Eastern cottonwood	120	
						Nuttall oak	90	
						Water oak	110	
						Pecan	---	
						American sycamore	---	
Co: Convent	1w5	Slight	Moderate	Slight	Moderate	Green ash	80	Eastern cottonwood, American sycamore.
						Eastern cottonwood	120	
						Sweetgum	110	
						American sycamore	---	
						Nuttall oak	90	
						Water oak	---	
						Pecan	---	
Cv: Crevasse	2s9	Slight	Moderate	Severe	Slight	Loblolly pine	90	Loblolly pine, eastern cottonwood.
						Sweetgum	90	
						White oak	90	
						Eastern cottonwood	100	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Wood-land suita-bility group	Management concerns: Erosion hazard	Management concerns: Equip-ment limita-tion	Management concerns: Seedling mortal-ity	Management concerns: Plant competi-tion	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
De----------------- Deerford	2w8	Slight	Moderate	Slight	Moderate	Sweetgum------------ Loblolly pine------- Slash pine---------- Water oak-----------	86 92 92 82	Loblolly pine, slash pine.
Fa----------------- Falaya	1w8	Slight	Moderate	Slight	Slight	Green ash----------- Eastern cottonwood-- Cherrybark oak------ Nuttall oak--------- Water oak----------- Loblolly pine------- Slash pine----------	92 100 102 109 102 104 104	Green ash, eastern cottonwood, cherrybark oak, Nuttall oak, sweetgum, yellow-poplar.
LeA---------------- Leverett	2o7	Slight	Slight	Slight	Slight	Cherrybark oak------ Loblolly pine------- Sweetgum------------	90 90 90	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
LoB2, LoC2, LoD2--- Loring	2o7	Slight	Slight	Slight	Severe	Cherrybark oak------ Loblolly pine------- Shortleaf pine------ Sweetgum------------ Water oak-----------	86 95 90 90 90	Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, yellow-poplar.
LR*:								
Lorman------------	3c2	Slight	Moderate	Moderate	Slight	Loblolly pine------- Shortleaf pine------	80 70	Loblolly pine, shortleaf pine.
Loring------------	2o7	Slight	Slight	Slight	Severe	Cherrybark oak------ Loblolly pine------- Shortleaf pine------ Sweetgum------------ Water oak-----------	86 95 90 90 90	Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, yellow-poplar.
MeA, MeB2, MeC2, MeD2, MeD3-------- Memphis	1o7	Slight	Slight	Slight	Moderate	Cherrybark oak------ Loblolly pine------- Sweetgum------------ Water oak-----------	100 105 90 90	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
MeF3--------------- Memphis	1r8	Moderate	Slight	Slight	Moderate	Cherrybark oak------ Loblolly pine------- Sweetgum------------ Water oak-----------	100 105 90 90	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
MM*:								
Memphis-----------	1r8	Moderate	Slight	Slight	Moderate	Cherrybark oak------ Loblolly pine------- Sweetgum------------ Water oak-----------	100 105 90 90	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
Morganfield-------	1w5	Slight	Moderate	Moderate	Moderate	Eastern cottonwood-- Green ash----------- Nuttall oak--------- Sweetgum------------ Water oak----------- Yellow-poplar-------	120 90 100 110 105 115	Eastern cottonwood, green ash, sweetgum, American sycamore, yellow-poplar.
MN*:								
Memphis-----------	1r8	Moderate	Slight	Slight	Moderate	Cherrybark oak------ Loblolly pine------- Sweetgum------------ Water oak-----------	100 105 90 90	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Wood-land suita-bility group	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Plant competi-tion	Common trees	Site index	
MN*:								
Natchez-----------	1r8	Moderate	Moderate	Slight	Slight	Cherrybark oak------	105	Eastern cottonwood,
						Eastern cottonwood--	110	green ash,
						Loblolly pine-------	100	loblolly pine,
						Sweetgum------------	105	sweetgum,
								American sycamore,
								yellow-poplar.
Mo-----------------	1o4	Slight	Slight	Slight	Moderate	Eastern cottonwood--	120	Eastern cottonwood,
Morganfield						Green ash-----------	90	green ash,
						Nuttall oak---------	100	sweetgum,
						Sweetgum------------	110	American sycamore,
						Water oak-----------	105	yellow-poplar.
						Yellow-poplar-------	115	
PvC2, PvD2---------	2o7	Slight	Slight	Slight	Slight	Loblolly pine-------	87	Loblolly pine,
Providence						Longleaf pine-------	73	Shumard oak,
						Sweetgum------------	90	sweetgum,
								yellow-poplar.
Rb-----------------	1o4	Slight	Slight	Slight	Slight	Eastern cottonwood--	110	Eastern cottonwood,
Robinsonville						Green ash-----------	85	sweetgum,
						Sweetgum------------	105	American sycamore.
						American sycamore---	115	
Ro-----------------	2w6	Slight	Severe	Moderate	Moderate	Green ash-----------	95	Green ash,
Rosebloom						Eastern cottonwood--	100	eastern cottonwood,
						Cherrybark oak------	95	cherrybark oak,
						Nuttall oak---------	95	Nuttall oak,
						Water oak-----------	95	water oak,
						Willow oak----------	90	willow oak,
						Sweetgum------------	95	loblolly pine,
						American sycamore---	80	sweetgum.
Sa, SH*------------	3w6	Slight	Severe	Severe	Moderate	Green ash-----------	70	Eastern cottonwood,
Sharkey						Eastern cottonwood--	90	sweetgum.
SmF*, SX*:								
Smithdale---------	2o1	Slight	Slight	Slight	Moderate	Loblolly pine-------	86	Loblolly pine,
						Longleaf pine-------	69	longleaf pine,
						Slash pine----------	85	slash pine.
Lexington---------	2o7	Slight	Slight	Slight	Moderate	Cherrybark oak------	86	Cherrybark oak,
						Southern red oak----	80	Shumard oak,
						Loblolly pine-------	95	loblolly pine,
						Shortleaf pine------	90	shortleaf pine,
						Sweetgum------------	90	sweetgum,
								yellow-poplar.
Tu-----------------	2w6	Slight	Severe	Moderate	Moderate	Cherrybark oak------	90	Cherrybark oak,
Tunica						Eastern cottonwood--	105	eastern cottonwood,
						Green ash-----------	100	green ash,
						Nuttall oak---------	105	Nuttall oak,
						Sweetgum------------	90	sweetgum,
								American sycamore.

* See map unit description for the composition and behavior of the map unit.

TABLE 8.--BUILDING SITE DEVELOPMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Ad: Adler	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods, wetness, low strength.
Bd: Bowdre	Severe: floods, wetness, too clayey.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, shrink-swell.
Bn: Bruin	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
BR*:					
Bruin	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Robinsonville	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Bu: Bruno	Severe: floods, too sandy.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Ca: Collins	Severe: floods.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.
Cm: Commerce	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.
Co: Convent	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.
Cv: Crevasse	Severe: floods, too sandy.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
De: Deerford	Severe: wetness, cutbanks cave.	Moderate: wetness, low strength, shrink-swell.	Severe: wetness.	Moderate: wetness, low strength, shrink-swell.	Moderate: low strength, shrink-swell.
Fa: Falaya	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
LeA: Leverett	Moderate: wetness.	Moderate: low strength.	Moderate: wetness, low strength.	Moderate: low strength.	Moderate: low strength.
LoB2: Loring	Moderate: low strength, wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
LoC2: Loring	Moderate: low strength, wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: slope, low strength.	Moderate: low strength.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
LoD2: Loring	Moderate: slope, wetness, low strength.	Moderate: slope, low strength.	Moderate: slope, low strength.	Severe: slope.	Moderate: slope, low strength.
LR*:					
Lorman	Severe: too clayey, slope.	Severe: shrink-swell, low strength, slope.	Severe: shrink-swell, low strength, slope.	Severe: shrink-swell, low strength, slope.	Severe: shrink-swell, low strength, slope.
Loring	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MeA, MeB2: Memphis	Slight	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
MeC2: Memphis	Slight	Moderate: low strength.	Moderate: low strength.	Moderate: low strength, slope.	Moderate: low strength.
MeD2, MeD3: Memphis	Moderate: slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
MeF3: Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MM*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Morganfield	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
MN*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Mo: Morganfield	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Pt*. Pits					
PvC2: Providence	Moderate: wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength, slope.	Moderate: low strength.
PvD2: Providence	Moderate: wetness, slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
Rb: Robinsonville	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Ro: Rosebloom	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Sa, SH*: Sharkey	Severe: wetness, too clayey.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
SmF*, SX*:					
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lexington	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Tu Tunica	Severe: floods, wetness, too clayey.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, shrink-swell, wetness.

* See map unit description for the composition and behavior of the map unit.

TABLE 9.--SANITARY FACILITIES

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ad: Adler	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Good.
Bd: Bowdre	Severe: floods, wetness, percs slowly.	Severe: floods, wetness, seepage.	Severe: floods, too clayey.	Severe: floods, wetness.	Poor: too clayey.
Bn: Bruin	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
BR*:					
Bruin	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
Robinsonville	Severe: floods.	Severe: floods, seepage.	Severe: seepage, floods.	Severe: seepage, floods.	Good.
Bu: Bruno	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Poor: too sandy.
Ca: Collins	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Good.
Cm: Commerce	Severe: floods, percs slowly, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Fair: too clayey.
Co: Convent	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Cv: Crevasse	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage, too sandy.	Severe: floods, seepage.	Poor: seepage, too sandy.
De: Deerford	Severe: percs slowly, wetness.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey.
Fa: Falaya	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
LeA: Leverett	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
LoB2, LoC2: Loring	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
LoD2: Loring	Severe: percs slowly.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
LR*:					
Lorman	Severe: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Severe: slope.	Poor: too clayey, slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
LR*:					
Loring	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.
MeA Memphis	Slight	Moderate: seepage.	Slight	Slight	Fair: too clayey.
MeB2, MeC2 Memphis	Slight	Moderate: seepage, slope.	Slight	Slight	Fair: too clayey.
MeD2, MeD3 Memphis	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: too clayey, slope.
MeF3 Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
MM*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Morganfield	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
MN*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Mo Morganfield	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
Pt*. Pits					
PvC2 Providence	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
PvD2 Providence	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
Rb Robinsonville	Severe: floods.	Severe: floods, seepage.	Severe: seepage, floods.	Severe: seepage, floods.	Good.
Ro Rosebloom	Severe: wetness, floods, percs slowly.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: floods, wetness.	Poor: wetness.
Sa, SH* Sharkey	Severe: floods, wetness, percs slowly.	Severe: floods.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: too clayey, wetness.
SmF*, SX*:					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Lexington	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Tu------------------- Tunica	Severe: floods, percs slowly, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: too clayey, wetness.

* See map unit description for the composition and behavior of the map unit.

TABLE 10.--CONSTRUCTION MATERIALS

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," and "unsuited." Absence of an entry means soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Ad: Adler	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Bd: Bowdre	Poor: shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Bn: Bruin	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
BR*:				
Bruin	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Robinsonville	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Bu: Bruno	Good	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Ca: Collins	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Cm: Commerce	Fair: low strength, shrink-swell, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Co: Convent	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Cv: Crevasse	Good	Good	Unsuited: excess fines.	Poor: too sandy.
De: Deerford	Fair: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Fa: Falaya	Fair: low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
LeA: Leverett	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
LoB2, LoC2, LoD2: Loring	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
LR*:				
Lorman	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer, slope.
Loring	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
MeA, MeB2, MeC2: Memphis	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
MeD2, MeD3: Memphis	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey, slope.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
MeF3------------------- Memphis	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
MM*:				
Memphis--------------	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Morganfield----------	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
MN*:				
Memphis--------------	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Natchez--------------	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Mo-------------------- Morganfield	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Pt*. Pits				
PvC2, PvD2------------ Providence	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Rb-------------------- Robinsonville	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Ro-------------------- Rosebloom	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Sa, SH*--------------- Sharkey	Poor: too clayey, shrink-swell, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, too clayey.
SmF*, SX*:				
Smithdale------------	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Lexington------------	Fair: slope, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Tu-------------------- Tunica	Poor: shrink-swell, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey, wetness.

* See map unit description for the composition and behavior of the map unit.

TABLE 11.--WATER MANAGEMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not evaluated]

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ad----------------- Adler	Moderate: seepage.	Moderate: low strength, piping.	Floods, cutbanks cave	Floods-------	Erodes easily	Erodes easily.
Bd----------------- Bowdre	Severe: seepage.	Moderate: seepage, piping.	Floods, wetness, percs slowly.	Floods, wetness, slow intake.	Percs slowly, wetness.	Percs slowly, wetness.
Bn----------------- Bruin	Moderate: seepage.	Moderate: erodes easily, low strength, piping.	Not needed----	Floods--------	Not needed----	Erodes easily.
BR*:						
Bruin-------------	Moderate: seepage.	Moderate: erodes easily, low strength, piping.	Not needed----	Floods--------	Not needed----	Erodes easily.
Robinsonville----	Severe: seepage.	Moderate: piping, seepage, low strength.	Floods--------	Fast intake, floods.	Not needed----	Favorable.
Bu----------------- Bruno	Severe: seepage.	Moderate: piping, low strength.	Not needed----	Floods, droughty, seepage.	Not needed----	Droughty.
Ca----------------- Collins	Moderate: seepage.	Moderate: piping, unstable fill.	Cutbanks cave, floods.	Erodes easily, floods, wetness.	Not needed----	Erodes easily.
Cm----------------- Commerce	Moderate: seepage.	Slight---------	Floods--------	Slope, slow intake.	Not needed----	Favorable.
Co----------------- Convent	Moderate: seepage.	Moderate: erodes easily, piping, low strength.	Floods, cutbanks cave	Floods--------	Not needed----	Erodes easily.
Cv----------------- Crevasse	Severe: seepage.	Severe: compressible, seepage, piping.	Floods--------	Fast intake, seepage.	Piping--------	Erodes easily, droughty.
De----------------- Deerford	Slight---------	Moderate: piping, compressible, erodes easily.	Not needed----	Excess sodium, slope, percs slowly.	Not needed----	Excess sodium, erodes easily.
Fa----------------- Falaya	Moderate: seepage.	Moderate: compressible, piping.	Floods, cutbanks cave	Favorable-----	Not needed----	Not needed.
LeA---------------- Leverett	Moderate: seepage.	Moderate: low strength, compressible, piping.	Not needed----	Slow intake---	Favorable-----	Wetness, erodes easily.
LoB2, LoC2, LoD2-- Loring	Moderate: seepage.	Moderate: piping, low strength.	Not needed----	Rooting depth, erodes easily slope.	Erodes easily, slope.	Rooting depth, erodes easily, slope.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
LR*:						
Lorman	Slight	Moderate: low strength, compressible.	Not needed	Slope, erodes easily slow intake.	Slope, erodes easily percs slowly.	Slope, erodes easily.
Loring	Moderate: seepage.	Moderate: piping, low strength.	Not needed	Rooting depth, erodes easily slope.	Erodes easily, slope.	Rooting depth, erodes easily, slope.
MeA, MeB2, MeC2, MeD2, MeD3, MeF3- Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Not needed	Erodes easily, slope.	Erodes easily, slope, piping.	Erodes easily, slope.
MM:						
Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Not needed	Erodes easily, slope.	Erodes easily, slope, piping.	Erodes easily, slope.
Morganfield	Moderate: seepage.	Moderate: piping, low strength, seepage.	Floods, cutbanks cave	Floods	Erodes easily	Erodes easily.
MN*:						
Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Not needed	Erodes easily, slope.	Erodes easily, slope, piping.	Erodes easily, slope.
Natchez	Severe: seepage.	Moderate: piping, compressible.	Slope	Erodes easily, slope.	Erodes easily, slope, piping.	Erodes easily, slope.
Mo- Morganfield	Moderate: seepage.	Moderate: piping, low strength, seepage.	Floods, cutbanks cave	Floods	Erodes easily	Erodes easily.
Pt*. Pits						
PvC2, PvD2- Providence	Slight	Moderate: piping, unstable fill.	Cutbanks cave, percs slowly, slope.	Erodes easily, percs slowly, slope.	Erodes easily, percs slowly, piping.	Erodes easily, percs slowly, slope.
Rb- Robinsonville	Severe: seepage.	Moderate: piping, seepage, low strength.	Floods	Fast intake, floods.	Not needed	Favorable.
Ro- Rosebloom	Slight	Moderate: compressible.	Floods, wetness.	Floods, wetness.	Wetness	Wetness.
Sa, SH*- Sharkey	Slight	Moderate: low strength, compressible, shrink-swell.	Floods, percs slowly.	Floods, percs slowly.	Not needed	Wetness.
SmF*, SX*:						
Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Not needed, slope.	Fast intake, seepage, complex slope	Slope, erodes easily	Slope, erodes easily
Lexington	Severe: seepage.	Slight	Not needed	Slope, erodes easily	Slope	Slope.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
Tu----------------- Tunica	Moderate: seepage.	Moderate: shrink-swell, compressible.	Floods, wetness, percs slowly.	Slow intake, floods, wetness.	Percs slowly, wetness.	Percs slowly, wetness.

* See map unit description for the composition and behavior of the map unit.

TABLE 12.--RECREATIONAL DEVELOPMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Ad---------------------- Adler	Severe: floods.	Moderate: floods.	Moderate: floods.	Moderate: floods.
Bd---------------------- Bowdre	Severe: floods, wetness, too clayey.	Severe: floods, wetness, too clayey.	Severe: floods, wetness, too clayey.	Severe: floods, wetness, too clayey.
Bn---------------------- Bruin	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
BR*:				
Bruin-------------------	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
Robinsonville-----------	Severe: floods.	Severe: floods.	Severe: floods.	Slight.
Bu---------------------- Bruno	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Ca---------------------- Collins	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight.
Cm---------------------- Commerce	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Co---------------------- Convent	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Cv---------------------- Crevasse	Severe: floods, too sandy.	Severe: too sandy.	Severe: floods, too sandy.	Severe: floods, too sandy.
De---------------------- Deerford	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
Fa---------------------- Falaya	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods, wetness.	Moderate: floods, wetness.
LeA--------------------- Leverett	Slight----------------	Slight----------------	Slight----------------	Slight.
LoB2-------------------- Loring	Slight----------------	Slight----------------	Moderate: slope.	Slight.
LoC2-------------------- Loring	Slight----------------	Slight----------------	Severe: slope.	Slight.
LoD2-------------------- Loring	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
LR*:				
Lorman------------------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Loring------------------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
MeA--------------------- Memphis	Slight----------------	Slight----------------	Slight----------------	Slight.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
MeB2 Memphis	Slight	Slight	Moderate: slope.	Slight.
MeC2 Memphis	Slight	Slight	Severe: slope.	Slight.
MeD2, MeD3 Memphis	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
MeF3 Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MM*:				
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Morganfield	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight.
MN*:				
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Mo Morganfield	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight.
Pt*. Pits				
PvC2 Providence	Slight	Slight	Severe: slope.	Slight.
PvD2 Providence	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Rb Robinsonville	Severe: floods.	Severe: floods.	Severe: floods.	Slight.
Ro Rosebloom	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Sa, SH* Sharkey	Severe: floods, too clayey, percs slowly.	Severe: floods, too clayey, wetness.	Severe: floods, too clayey, percs slowly.	Severe: floods, too clayey, wetness.
SmF*, SX*:				
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lexington	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Tu Tunica	Severe: floods, wetness, too clayey.	Severe: floods, wetness, too clayey.	Severe: floods, wetness, too clayey.	Severe: floods, wetness, too clayey.

* See map unit description for the composition and behavior of the map unit.

TABLE 13.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates the soil was not rated]

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Ad: Adler	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
Bd: Bowdre	Poor	Fair	Fair	Fair	---	Poor	Fair	Fair	Fair	Poor.
Bn: Bruin	Fair	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
BR*:										
Bruin	Poor	Fair	Fair	Good	---	Poor	Poor	Fair	Good	Poor.
Robinsonville	Poor	Fair	Fair	Good	---	Poor	Very poor.	Fair	Good	Very poor.
Bu: Bruno	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Ca: Collins	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Cm: Commerce	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
Co: Convent	Fair	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
Cv: Crevasse	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
De: Deerford	Fair	Good	Good	---	Good	Fair	Fair	Good	Good	Fair.
Fa: Falaya	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
LeA: Leverett	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
LoB2: Loring	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LoC2, LoD2: Loring	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LR*:										
Lorman	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Loring	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MeA, MeB2: Memphis	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MeC2, MeD2, MeD3: Memphis	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MeF3: Memphis	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
MM*:										
Memphis	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Morganfield	Poor	Fair	Fair	Good	---	Poor	Very poor.	Fair	Good	Very poor.
MN*:										
Memphis	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Natchez	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Mo Morganfield	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Pt*. Pits										
PvC2, PvD2 Providence	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Rb Robinsonville	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Ro Rosebloom	Poor	Fair	Good	Fair	---	Good	Good	Fair	Fair	Good.
Sa Sharkey	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
SH* Sharkey	Poor	Fair	Fair	Good	---	Fair	Fair	Poor	Fair	Fair.
SmF*, SX*:										
Smithdale	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Lexington	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tu Tunica	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.

* See map unit description for the composition and behavior of the map unit.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated. NP means nonplastic]

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
Ad------------------ Adler	0-50	Silt loam-------	ML, CL, CL-ML	A-4	100	100	95-100	60-95	<30	NP-10
Bd------------------ Bowdre	0-15	Silty clay------	CH	A-7	100	100	95-100	90-95	51-65	28-40
	15-19	Silt loam, loam	CL-ML, CL, ML	A-4, A-6	100	100	90-100	70-90	25-35	5-12
	19-50	Sandy loam, silt loam, loam.	SC, CL, CL-ML, SM-SC	A-2, A-4	100	100	60-100	30-90	20-30	5-10
Bn------------------ Bruin	0-11	Silt loam-------	ML, CL-ML	A-4	100	100	95-100	80-100	<27	NP-7
	11-55	Silt loam, loam, very fine sandy loam.	ML, CL-ML, CL	A-4	100	100	95-100	80-100	<32	NP-10
BR*:										
Bruin---------------	0-11	Silt loam-------	ML, CL-ML	A-4	100	100	95-100	80-100	<27	NP-7
	11-55	Silt loam, loam, very fine sandy loam.	ML, CL-ML CL	A-4	100	100	95-100	80-100	<32	NP-10
Robinsonville------	0-8	Very fine sandy loam.	SM, ML	A-4	100	95-100	85-95	35-80	<25	NP-3
	8-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	100	95-100	75-95	35-65	<25	NP-3
Bu------------------ Bruno	0-8	Sandy loam------	SM, ML	A-2, A-4	100	100	60-85	30-60	<25	NP-3
	8-34	Sand, loamy sand	SP-SM, SM	A-2	100	100	60-80	10-30	---	NP
	34-60	Sand------------	SP-SM, SM	A-2, A-3	100	100	50-70	5-20	---	NP
Ca------------------ Collins	0-5	Silt loam-------	ML, CL, CL-ML	A-4	100	100	85-100	70-90	<30	NP-8
	5-55	Silt loam, silt	ML, CL-ML	A-4	100	100	100	90-100	<35	NP-10
Cm------------------ Commerce	0-9	Silt loam-------	CL-ML, CL, ML	A-4	100	100	100	75-100	<30	NP-10
	9-46	Silty clay loam, silt loam, loam.	CL	A-6, A-7-6	100	100	100	85-100	32-45	11-23
	46-65	Stratified very fine sandy loam to silty clay.	CL-ML, CL, ML	A-4, A-6, A-7-6	100	100	100	75-100	23-45	3-23
Co------------------ Convent	0-7	Silt loam-------	ML, CL-ML	A-4	100	100	95-100	85-100	<27	NP-7
	7-50	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	100	100	95-100	75-100	<27	NP-7
Cv------------------ Crevasse	0-3	Sand------------	SP-SM, SM	A-2-4, A-3	100	95-100	50-100	5-20	---	NP
	3-60	Sand, loamy sand	SP-SM, SM	A-2, A-3	100	95-100	50-100	5-20	---	NP
De------------------ Deerford	0-15	Silt------------	ML, CL-ML	A-4	100	100	100	95-100	<28	NP-7
	15-42	Silty clay loam, silt loam.	CL	A-6, A-7-6	100	100	100	95-100	32-45	11-21
	42-67	Silt loam-------	CL, CL-ML	A-6, A-4	100	100	100	95-100	25-40	5-17
Fa------------------ Falaya	0-31	Silt------------	ML, CL-ML, CL	A-4, A-6	100	100	100	95-100	<30	NP-10
	31-60	Silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	100	100	100	95-100	25-43	7-16
LeA----------------- Leverett	0-32	Silt------------	CL-ML, ML	A-4	100	100	100	90-100	<25	NP-7
	32-70	Silt loam-------	ML, CL	A-4, A-6	100	100	100	90-100	20-40	8-15

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
LoB2, LoC2, LoD2---Loring	0-5	Silt loam-------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	20-35	4-15
	5-27	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	95-100	90-100	35-45	15-25
	27-60	Silt loam-------	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	8-18
LR*:										
Lorman------------	0-5	Silt loam-------	CL, CL-ML	A-4, A-6	100	100	90-100	70-95	20-35	5-15
	5-47	Clay, silty clay, silty clay loam.	CL, CH	A-7	95-100	95-100	95-100	90-95	44-85	20-50
	47-65	Clay, silty clay, silty clay loam.	CL, CH	A-6, A-7	90-100	80-100	80-100	75-95	30-55	12-30
Loring------------	0-5	Silt loam-------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	20-35	4-15
	5-27	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	95-100	90-100	35-45	15-25
	27-60	Silt loam-------	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	8-18
MeA, MeB2, MeC2, MeD2, MeD3, MeF3--Memphis	0-7	Silt loam-------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	7-24	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	100	90-100	35-48	15-25
	24-60	Silt loam-------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
MM*:										
Memphis-----------	0-7	Silt loam-------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	7-24	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	100	90-100	35-48	15-25
	24-60	Silt loam-------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
Morganfield-------	0-8	Silt loam-------	ML, CL, CL-ML	A-4	100	100	95-100	65-95	<30	NP-10
	8-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	100	100	95-100	65-95	<30	NP-10
MN*:										
Memphis-----------	0-7	Silt loam-------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	7-24	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	100	90-100	35-48	15-25
	24-60	Silt loam-------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
Natchez-----------	0-27	Silt loam-------	ML, CL-ML, CL	A-4	100	100	100	85-100	<35	NP-10
	27-72	Silt loam, silt	ML, CL-ML	A-4	100	100	100	85-100	<30	NP-7
Mo-----------------Morganfield	0-8	Silt------------	ML, CL, CL-ML	A-4	100	100	95-100	65-95	<30	NP-10
	8-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	100	100	95-100	65-95	<30	NP-10
Pt*. Pits										

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
PvC2, PvD2: Providence	0-7	Silt loam	ML, CL, CL-ML	A-4	100	100	100	85-100	<30	NP-10
	7-30	Silty clay loam, silt loam.	CL	A-7, A-6	100	100	95-100	85-100	30-45	11-20
	30-56	Silt loam, silty clay loam.	CL	A-6	100	100	90-100	70-90	25-40	11-20
	56-66	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	100	95-100	70-95	40-80	20-35	8-18
	66-70	Sandy loam, sandy clay loam, loam.	SM, SC, CL, ML	A-2, A-4	100	95-100	60-85	30-80	<30	NP-10
Rb: Robinsonville	0-8	Very fine sandy loam.	SM, ML	A-4	100	95-100	85-95	35-80	<25	NP-3
	8-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	100	95-100	75-95	35-65	<25	NP-3
Ro: Rosebloom	0-60	Silt loam	CL	A-4, A-6	100	100	90-100	80-95	28-40	9-20
Sa, SH*: Sharkey	0-5	Clay	CH, CL	A-7-6	100	100	100	95-100	46-85	22-50
	5-50	Clay	CH	A-7-6	100	100	100	95-100	56-85	30-50
SmF*, SX*: Smithdale	0-15	Sandy loam	SM, SM-SC	A-4	100	85-100	60-80	36-49	<20	NP-5
	15-28	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-95	45-75	23-38	7-15
	28-70	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-80	36-70	<30	NP-10
Lexington	0-3	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	100	95-100	90-100	70-95	25-42	5-16
	3-21	Silty clay loam, silt loam.	CL	A-6, A-7	100	95-100	90-100	75-95	27-45	11-25
	21-65	Sandy loam, loamy sand.	SC, SM-SC	A-2, A-4, A-6	100	95-100	50-75	20-40	22-35	7-15
Tu: Tunica	0-6	Silty clay	CH, MH	A-7	100	98-100	95-100	90-100	50-80	25-45
	6-28	Clay, silty clay	CH, MH	A-7	100	98-100	95-100	90-100	50-80	25-45
	28-55	Fine sandy loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	100	95-100	65-100	51-100	<40	NP-20

* See map unit description for the composition and behavior of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means greater than. The erosion tolerance factor (T) is for the entire profile. Absence of an entry means data were not available or were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Ad	0-50	0.6-2.0	0.20-0.23	5.6-7.8	Low	Moderate	Low	0.43	5
Adler									
Bd	0-15	0.06-0.2	0.15-0.20	5.6-7.3	High	High	Low	0.37	3
Bowdre	15-19	0.2-0.6	0.19-0.22	6.1-8.4	Low	High	Low	0.32	
	19-50	0.6-2.0	0.15-0.22	6.1-8.4	Low	High	Low	0.32	
Bn	0-11	0.6-2.0	0.21-0.23	5.6-7.8	Low	Moderate	Low	0.37	5
Bruin	11-55	0.2-0.6	0.18-0.23	6.1-8.4	Low	Moderate	Low	0.37	
BR*:									
Bruin	0-11	0.6-2.0	0.21-0.23	5.6-7.8	Low	Moderate	Low	0.37	5
	11-55	0.2-0.6	0.18-0.23	6.1-8.4	Low	Moderate	Low	0.37	
Robinsonville	0-8	2.0-6.0	0.15-0.22	6.1-8.4	Low	Low	Low	0.32	5
	8-60	0.6-6.0	0.14-0.18	6.1-8.4	Low	Low	Low	0.32	
Bu	0-8	6.0-20	0.10-0.15	5.1-7.8	Low	Low	Low	0.17	5
Bruno	8-34	6.0-20	0.05-0.10	5.1-7.8	Low	Low	Low	0.17	
	34-60	6.0-20	0.02-0.05	5.1-7.8	Very low	Low	Low	0.17	
Ca	0-5	0.6-2.0	0.16-0.24	4.5-5.5	Low	Moderate	Moderate	0.43	5
Collins	5-55	0.6-2.0	0.20-0.24	4.5-5.5	Low	Moderate	Moderate	0.43	
Cm	0-9	0.6-2.0	0.21-0.23	5.6-7.8	Low	High	Low	0.37	5
Commerce	9-46	0.2-0.6	0.20-0.22	6.1-8.4	Moderate	High	Low	0.32	
	46-65	0.2-2.0	0.20-0.23	6.6-8.4	Low	High	Low	0.37	
Co	0-7	0.6-2.0	0.18-0.23	5.6-8.4	Low	High	Low	0.37	5
Convent	7-50	0.6-2.0	0.20-0.23	6.1-8.4	Low	High	Low	0.37	
Cv	0-3	6.0-20	0.02-0.06	5.6-8.4	Low	Low	Moderate	0.15	5
Crevasse	3-60	6.0-20	0.02-0.06	5.6-8.4	Low	Low	Moderate	0.15	
De	0-15	0.6-2.0	0.21-0.23	4.5-6.5	Low	High	Moderate	0.49	3
Deerford	15-42	0.06-0.2	0.12-0.18	5.1-8.4	Moderate	High	Low	0.49	
	42-67	0.2-0.6	0.12-0.15	6.6-8.4	Low	High	Low	0.49	
Fa	0-31	0.6-2.0	0.20-0.22	4.5-5.5	Low	High	Moderate	0.43	5
Falaya	31-60	0.06-2.0	0.14-0.22	4.5-5.5	Low	High	Moderate	0.43	
LeA	0-32	0.6-2.0	0.20-0.23	4.5-6.0	Low	Moderate	Moderate	0.37	4
Leverett	32-70	0.6-2.0	0.15-0.20	4.5-6.0	Low	Moderate	Moderate	0.37	
LoB2, LoC2, LoD2	0-5	0.6-2.0	0.20-0.23	5.1-6.0	Low	Moderate	Moderate	0.43	3
Loring	5-27	0.6-2.0	0.20-0.22	5.1-6.0	Low	Moderate	Moderate	0.43	
	27-60	0.2-0.6	0.06-0.13	5.1-6.0	Low	Moderate	Moderate	0.43	
LR*:									
Lorman	0-5	0.6-2.0	0.20-0.22	4.5-6.5	Low	Moderate	Moderate	0.43	3
	5-47	<0.06	0.16-0.20	5.1-7.8	Very high	High	Moderate	0.32	
	47-65	<0.06	0.10-0.16	5.6-7.8	Very high	High	Low	0.32	
Loring	0-5	0.6-2.0	0.20-0.23	5.1-6.0	Low	Moderate	Moderate	0.43	3
	5-27	0.6-2.0	0.20-0.22	5.1-6.0	Low	Moderate	Moderate	0.43	
	27-60	0.2-0.6	0.06-0.13	5.1-6.0	Low	Moderate	Moderate	0.43	
MeA, MeB2, MeC2, MeD2, MeD3, MeF3	0-7	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5
Memphis	7-24	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37	
	24-60	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
MM*:									
Memphis	0-7	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5
	7-24	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37	
	24-60	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	
Morganfield	0-8	0.6-2.0	0.20-0.23	5.6-7.8	Low	Low	Low	0.43	5
	8-60	0.6-2.0	0.20-0.23	5.6-7.8	Low	Low	Low	0.43	
MN*:									
Memphis	0-7	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5
	7-24	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37	
	24-60	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	
Natchez	0-27	0.6-2.0	0.20-0.24	5.1-7.3	Low	Low	Low	0.37	5
	27-72	0.6-2.0	0.20-0.24	6.6-8.4	Low	Low	Low	0.37	
Mo	0-8	0.6-2.0	0.20-0.23	5.6-7.8	Low	Low	Low	0.43	5
Morganfield	8-60	0.6-2.0	0.20-0.23	5.6-7.8	Low	Low	Low	0.43	
Pt*.									
Pits									
PvC2, PvD2	0-7	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43	3
Providence	7-30	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43	
	30-56	0.2-0.6	0.08-0.10	4.5-6.0	Moderate	Moderate	Moderate	0.32	
	56-66	0.2-0.6	0.08-0.10	4.5-6.0	Low	Moderate	Moderate	0.32	
	66-70	0.6-2.0	0.10-0.15	4.5-6.0	Low	Moderate	Moderate	0.32	
Rb	0-8	2.0-6.0	0.15-0.22	6.1-8.4	Low	Low	Low	0.32	5
Robinsonville	8-60	0.6-6.0	0.14-0.18	6.1-8.4	Low	Low	Low	0.32	
Ro	0-60	0.06-0.2	0.20-0.24	4.5-5.5	Moderate	High	Moderate	0.37	5
Rosebloom									
Sa, SH*	0-5	<0.06	0.18-0.20	5.1-8.4	Very high	High	Low	0.24	5
Sharkey	5-50	<0.06	0.18-0.20	5.6-8.4	Very high	High	Low	0.28	
SmF*, SX*:									
Smithdale	0-15	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28	5
	15-28	0.6-2.0	0.15-0.17	4.5-5.5	Low	Low	Moderate	0.24	
	28-70	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28	
Lexington	0-3	0.6-2.0	0.17-0.22	4.5-6.0	Low	Low	Moderate	0.43	3
	3-21	0.6-2.0	0.16-0.21	4.5-6.0	Low	Moderate	Moderate	0.43	
	21-65	2.0-6.0	0.06-0.12	4.5-6.0	Low	Low	Moderate	0.24	
Tu	0-6	<0.06	0.15-0.20	5.6-7.8	High	High	Low	0.32	3
Tunica	6-28	<0.06	0.15-0.20	5.6-7.8	High	High	Low	0.32	
	28-55	0.06-2.0	0.10-0.22	5.6-7.8	Low	High	Low	0.32	

* See map unit description for the composition and behavior of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[Absence of an entry indicates the feature is not a concern. See text for descriptions of symbols and such terms as "rare," "brief," and "perched." The symbol < means less than; > means greater than]

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months
					Ft		
Ad----------------- Adler	C	Rare to common	Very brief to long.	Jan-Apr	2.0-3.0	Apparent	Jan-Apr
Bd----------------- Bowdre	C	Rare to common	Brief to long	Jan-Apr	1.5-2.0	Perched	Jan-Apr
Bn----------------- Bruin	B	Common----------	Brief to long	Dec-Jun	>6.0	---	---
BR*:							
Bruin-------------	B	Common----------	Brief to long	Dec-Jun	>6.0	---	---
Robinsonville-----	B	Common----------	Brief to long	Jan-Apr	4.0-6.0	Apparent	Jan-Apr
Bu----------------- Bruno	A	Common----------	Brief-----------	Dec-Jun	4.0-6.0	Apparent	Dec-Apr
Ca----------------- Collins	C	Common----------	Brief to long	Jan-Apr	2.0-5.0	Apparent	Jan-Apr
Cm----------------- Commerce	C	Common----------	Brief to long	Dec-Jun	1.5-4.0	Apparent	Dec-Apr
Co----------------- Convent	C	Common----------	Brief to long	Dec-Jul	1.5-4.0	Apparent	Dec-Apr
Cv----------------- Crevasse	A	Frequent--------	Brief to long	Oct-Mar	3.5-6.0	Apparent	Nov-Mar
De----------------- Deerford	D	None------------	---	---	0.5-1.5	Perched	Dec-Apr
Fa----------------- Falaya	D	Common----------	Brief to long	Jan-Apr	1.0-2.0	Apparent	Jan-Apr
LeA---------------- Leverett	C	None------------	---	---	2.5-3.0	Perched	Jan-Apr
LoB2, LoC2, LoD2-- Loring	C	None------------	---	---	2.0-3.0	Perched	Dec-Mar
LR*:							
Lorman------------	D	None------------	---	---	>6.0	---	---
Loring------------	C	None------------	---	---	2.0-3.0	Perched	Dec-Mar
MeA, MeB2, MeC2, MeD2, MeD3, MeF3- Memphis	B	None------------	---	---	>6.0	---	---
MM*:							
Memphis-----------	B	None------------	---	---	>6.0	---	---
Morganfield-------	B	None to common	Brief-----------	Jan-Apr	3.0-4.0	Apparent	Jan-Apr
MN*:							
Memphis-----------	B	None------------	---	---	>6.0	---	---
Natchez-----------	B	None------------	---	---	>6.0	---	---
Mo----------------- Morganfield	B	None to common	Brief-----------	Jan-Apr	3.0-4.0	Apparent	Jan-Apr

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months
					Ft		
Pt*. Pits							
PvC2, PvD2--------- Providence	C	None-----------	---	---	1.5-3.0	Perched	Jan-Mar
Rb----------------- Robinsonville	B	Common---------	Brief-----------	Jan-Apr	4.0-6.0	Apparent	Jan-Apr
Ro----------------- Rosebloom	D	Common---------	Brief to long	Jan-Mar	1.0	Apparent	Jan-Mar
Sa, SH*------------ Sharkey	D	Common---------	Brief to very long.	Dec-Jun	0-2.0	Apparent	Dec-Apr
SmF*, SX*: Smithdale---------	B	None-----------	---	---	>6.0	---	---
Lexington---------	B	None-----------	---	---	>6.0	---	---
Tu----------------- Tunica	D	Common---------	Brief to long	Jan-Apr	1.5-3.0	Apparent	Jan-Apr

* See map unit description for the composition and behavior of the map unit.

TABLE 17.--CHEMICAL ANALYSES OF SELECTED SOILS

[Analyses were made by the soil genesis and morphology laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series	Sample number	Horizon	Depth	Reaction	Exchangeable cations: Ca++	Mg++	H+	K+	Na+	Sum of cations	Base saturation
			In	pH	meq/100 g						Pct
Deerford.	69	Ap	0-5	5.5	2.1	0.5	2.0	0.2	0.1	4.9	59.1
	70	A21g	5-15	5.8	2.9	0.8	1.6	0.1	0.2	5.6	71.4
	71	A22g	15-23	5.5	4.4	3.4	5.9	0.2	0.9	14.8	60.1
	72	B21tg	23-42	6.5	5.3	5.5	0.1	0.2	2.6	13.7	99.0
	73	B22tg	42-67	7.0	6.3	6.1	0	0.2	2.6	15.2	100.0
Falaya.	14	Ap	0-6	5.8	3.0	0.5	4.9	0.3	0.1	8.8	44.1
	15	C1	6-14	5.6	1.8	0.4	1.6	0.2	0.1	4.1	60.1
	16	C2g	14-31	5.2	0.5	0.5	1.4	0.1	0.2	2.7	48.4
	17	A2gb&Bb	31-48	5.2	0.9	1.5	0.7	0.1	0.4	3.6	82.0
	18	Bb	48-60	5.4	1.5	1.9	3.2	0.2	0.3	7.1	56.3
Leverett.	142	Ap	0-7	5.6	2.9	0.8	4.5	0.2	0.2	8.6	47.7
	143	B1	7-23	5.5	3.2	1.3	5.9	0.1	0.3	10.8	45.2
	144	B21t	23-32	5.2	3.0	1.4	6.1	0.2	0.2	10.9	44.1
	145	B22t&A'2	32-48	5.1	2.0	1.4	5.4	0.2	0.2	9.2	41.1
	146	B23t	48-70	5.3	1.1	1.1	3.8	0.2	0.2	6.4	39.8
Morganfield.	19	Ap	0-8	5.9	3.0	1.2	1.8	0.4	0.04	6.5	72.0
	20	C1	8-16	6.2	3.6	1.6	1.6	0.2	0.04	7.0	76.9
	21	C2	16-23	7.7	3.8	2.6	0.4	0.1	0.04	6.9	94.4
	22	C3	23-36	7.7	4.3	2.9	0.3	0.1	0.04	7.7	96.8
	23	C4	36-60	7.7	5.1	2.4	0.9	0.1	0.06	8.5	89.9

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS

[Analyses were made by the soil genesis and morphology laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series	Sample number	Horizon	Depth	Particle size distribution: Total clay (<0.002 mm)	Total silt (0.05-0.002 mm)	Total sand (2.0-0.05 mm)
			In			
Deerford.	69	Ap	0-5	2.5	92.8	4.7
	70	A21g	5-15	6.1	90.2	3.7
	71	A22g	15-23	22.7	75.4	1.9
	72	B21tg	23-42	21.1	75.1	3.8
	73	B22tg	42-67	21.9	74.4	3.7
Falaya.	14	Ap	0-6	8.1	86.5	5.4
	15	C1	6-14	7.6	85.6	6.8
	16	C2g	14-31	6.3	85.6	8.1
	17	A2gb&Bb	31-48	10.1	79.6	10.3
	18	Bb	48-60	9.6	61.7	28.7
Leverett.	142	Ap	0-7	6.3	88.6	5.1
	143	B1	7-23	15.2	80.4	4.4
	144	B21t	23-32	19.2	74.7	6.1
	145	B22t&A'2	32-48	14.5	69.4	16.1
	146	B23	48-70	7.6	75.0	17.4
Morganfield.	19	Ap	0-8	5.1	88.3	6.6
	20	C1	8-16	5.6	90.0	4.4
	21	C2	16-23	5.6	92.4	2.0
	22	C3	23-36	5.6	93.9	0.5
	23	C4	36-60	7.6	91.7	0.7

TABLE 19.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics of this taxadjunct that are outside the range of the series]

Soil name	Family or higher taxonomic class
Adler	Coarse-silty, mixed, nonacid, thermic Aquic Udifluvents
Bowdre	Clayey over loamy, montmorillonitic, thermic Fluvaquentic Hapludolls
Bruin	Coarse-silty, mixed, thermic Fluvaquentic Eutrochrepts
Bruno	Sandy, mixed, thermic Typic Udifluvents
Collins	Coarse-silty, mixed, acid, thermic Aquic Udifluvents
Commerce	Fine-silty, mixed, nonacid, thermic Aeric Fluvaquents
Convent	Coarse-silty, mixed, nonacid, thermic Aeric Fluvaquents
Crevasse	Mixed, thermic Typic Udipsamments
Deerford	Fine-silty, mixed, thermic Albic Glossic Natraqualfs
Falaya	Coarse-silty, mixed, acid, thermic Aeric Fluvaquents
Leverett	Coarse-silty, mixed, thermic Haplic Glossudalfs
Lexington	Fine-silty, mixed, thermic Typic Paleudalfs
Loring	Fine-silty, mixed, thermic Typic Fragiudalfs
Lorman	Fine, montmorillonitic, thermic Vertic Hapludalfs
Memphis	Fine-silty, mixed, thermic Typic Hapludalfs
Morganfield	Coarse-silty, mixed, nonacid, thermic Typic Udifluvents
Natchez	Coarse-silty, mixed, thermic Typic Eutrochrepts
Providence	Fine-silty, mixed, thermic Typic Fragiudalfs
Robinsonville	Coarse-loamy, mixed, nonacid, thermic Typic Udifluvents
*Rosebloom	Fine-silty, mixed, acid, thermic Typic Fluvaquents
Sharkey	Very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic Vertic Haplaquepts

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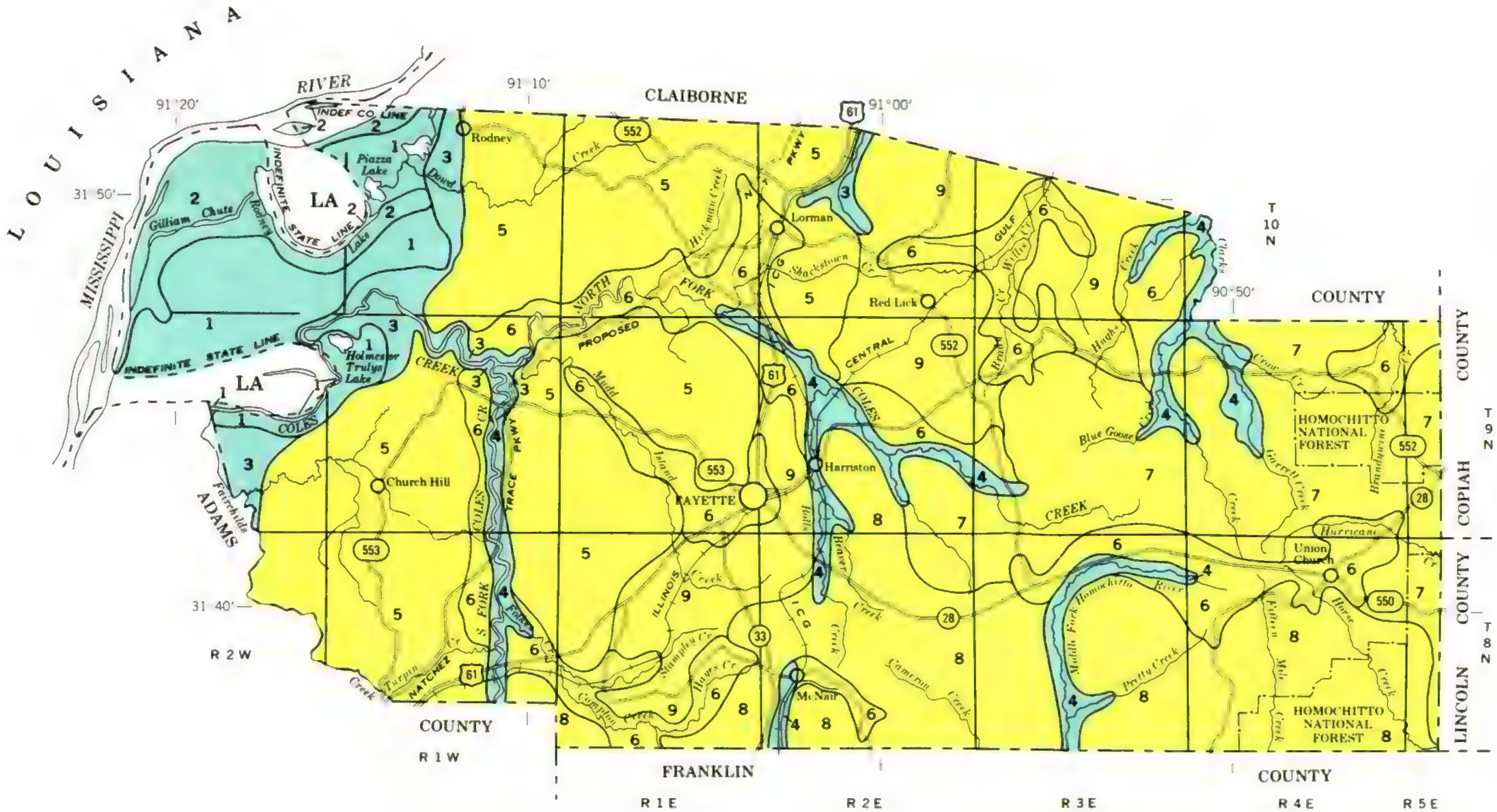


LEGEND

DOMINANTLY NEARLY LEVEL, CLAYEY, SILTY, AND LOAMY SOILS ON FLOOD PLAINS

1	Sharkey-Bowdre-Tunica: Poorly drained and somewhat poorly drained, clayey soils
2	Bruin-Robinsonville-Crevasse: Moderately well drained and well drained, loamy soils and excessively drained, sandy soils
3	Morganfield-Adler-Convent: Well drained to somewhat poorly drained, silty soils
4	Falaya-Collins-Deerford: Somewhat poorly drained and moderately well drained, silty soils

DOMINANTLY SLOPING TO STEEP, SILTY, CLAYEY, AND LOAMY SOILS ON UPLANDS

5	Memphis-Natchez: Well drained, sloping to steep, silty soils
6	Memphis-Loring-Providence: Well drained, steep, silty soils and moderately well drained, gently sloping, silty soils that have a fragipan
7	Lorman-Loring: Moderately well drained, hilly, clayey soils and moderately well drained, hilly, silty soils that have a fragipan
8	Smithdale-Lexington: Well drained, hilly, loamy and silty soils
9	Memphis-Morganfield: Well drained, sloping to steep, silty soils on uplands and well drained, nearly level, silty soils on flood plains

Compiled 1979

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

GENERAL SOIL MAP

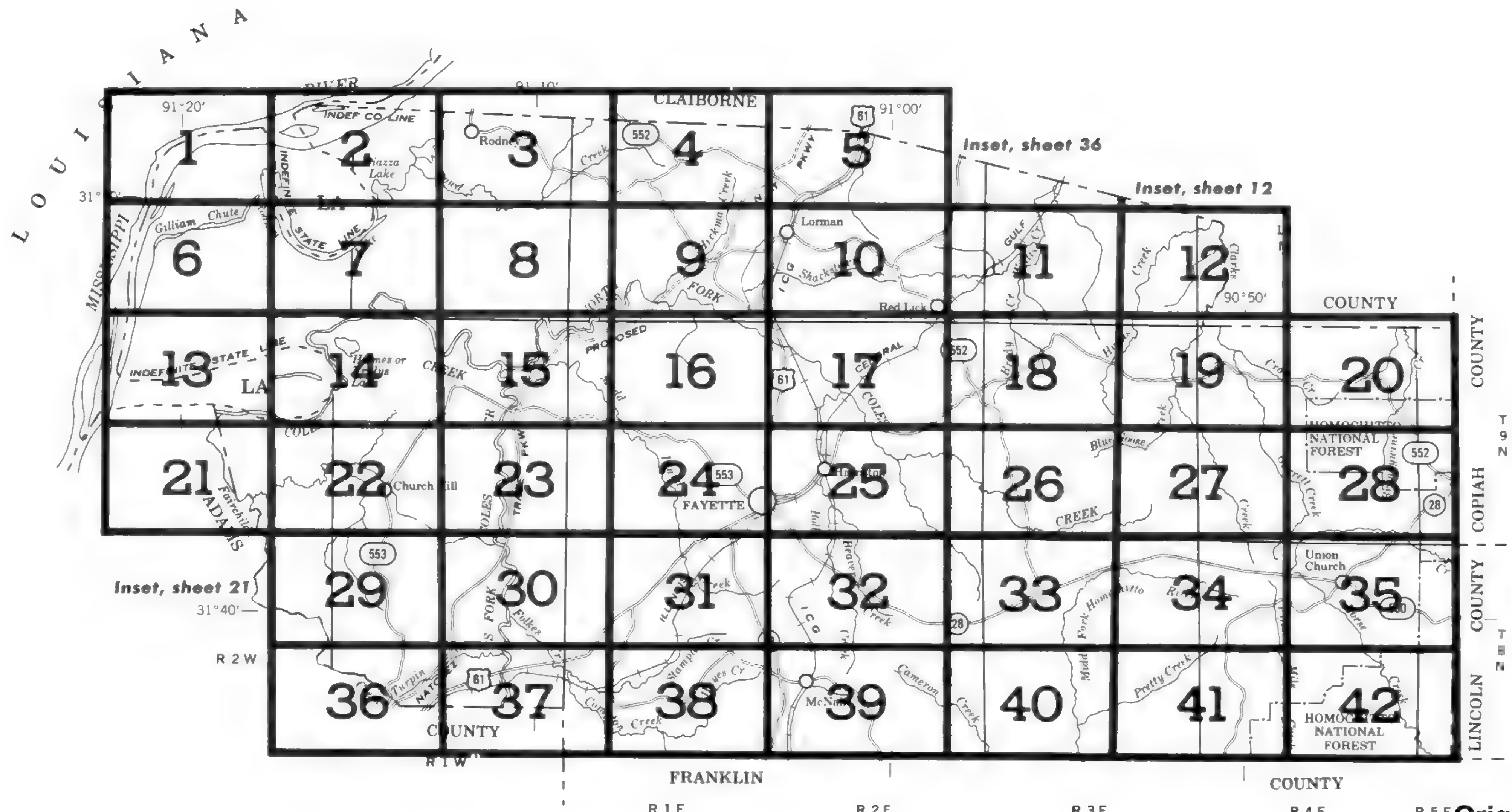
JEFFERSON COUNTY, MISSISSIPPI

N

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km



Original text from each individual map sheet read:
This map is compiled on 1976 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

INDEX TO MAP SHEETS

JEFFERSON COUNTY, MISSISSIPPI

N

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label) — Hedley Airstrip

Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 21
- Federal — 173
- State — 28
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water, w

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — int, i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — CnB, WaC2

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown) — S

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

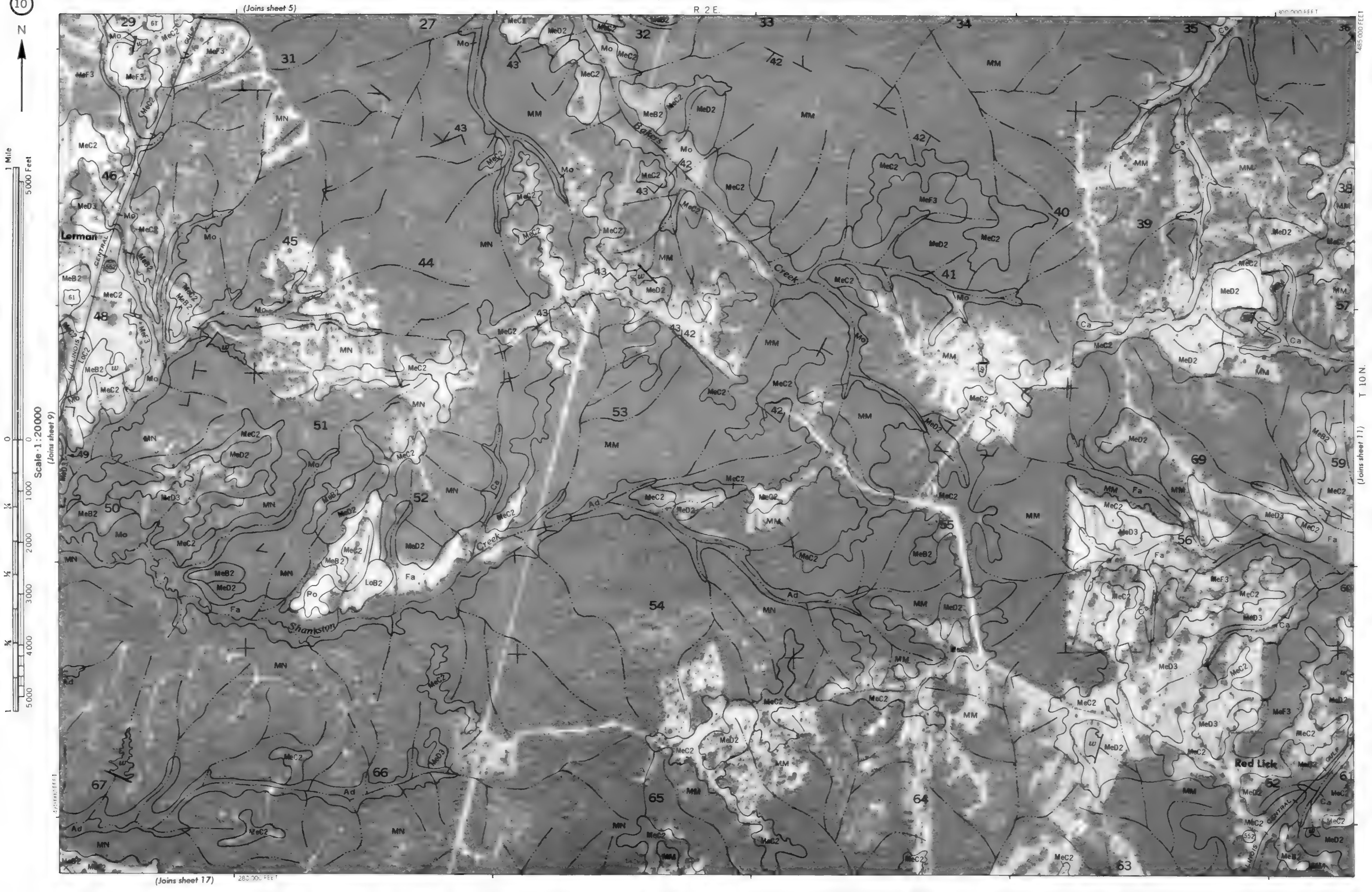
SOIL LEGEND

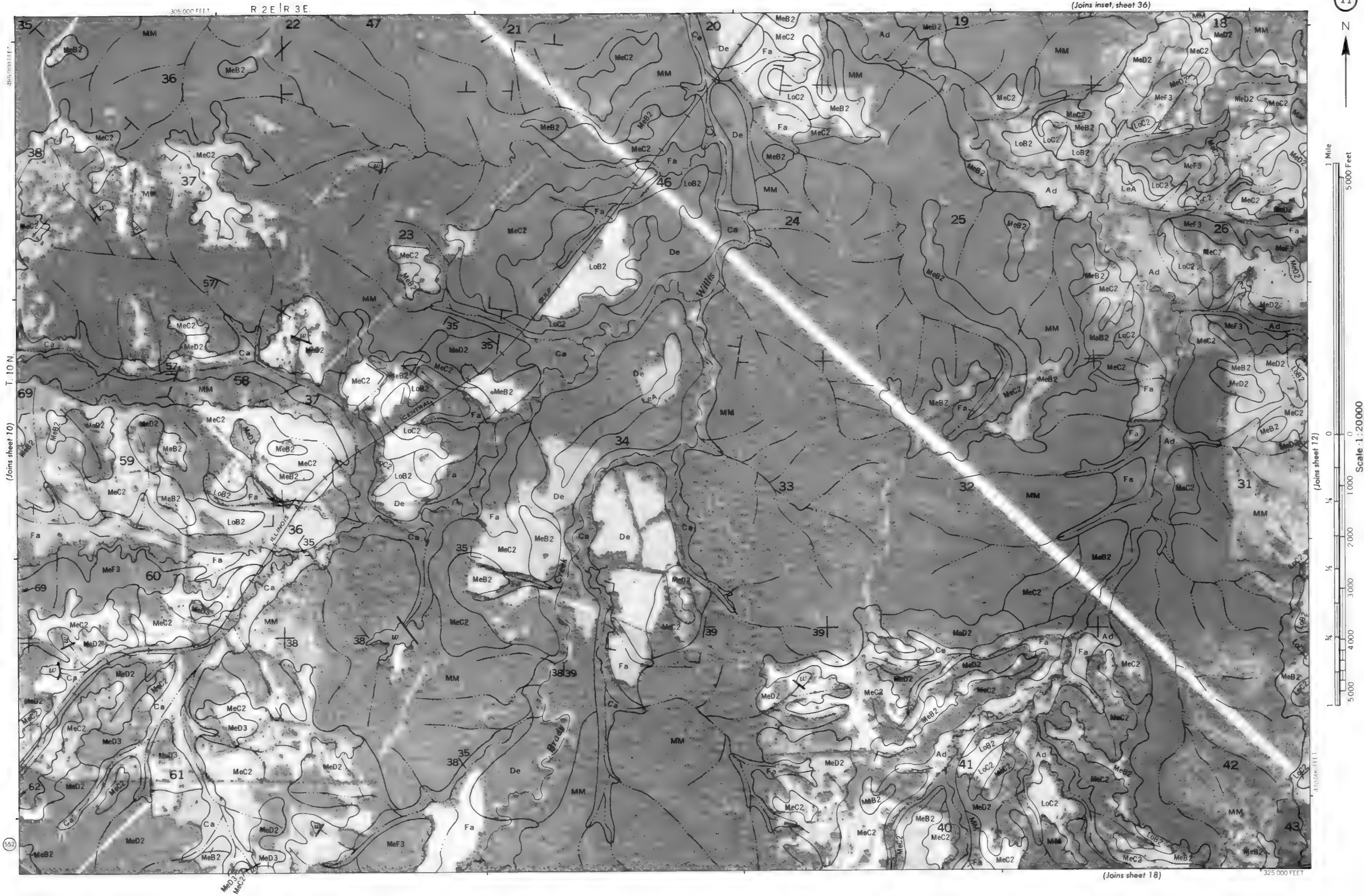
The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined 1/ otherwise, it is a small letter. The third letter, always a capital, shows the slope. Symbols without slope letters are those of nearly level soils. A final number, 2 or 3, shows the soil is eroded or severely eroded.

SYMBOL	NAME
Ad	Adler silt loam
Bd	Bowdre silty clay
Bn	Bruin silt loam
BR	Bruin-Robinsonville association
Bu	Bruno sandy loam
Ca	Collins silt loam
Cm	Commerce silt loam
Co	Convent silt loam
Cv	Crevasse sand
De	Deerford silt
Fa	Falaya silt
LeA	Leverett silt, 0 to 2 percent slopes
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded
LoC2	Loring silt loam, 5 to 8 percent slopes, eroded
LoD2	Loring silt loam, 8 to 12 percent slopes, eroded
LR	Lorman-Loring association, hilly
MeA	Memphis silt loam, 0 to 2 percent slopes
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded
MeD2	Memphis silt loam, 8 to 12 percent slopes, eroded
MeD3	Memphis silt loam, 8 to 12 percent slopes, severely eroded
MeF3	Memphis silt loam, 12 to 25 percent slopes, severely eroded
MM	Memphis-Morganfield association, hilly
MN	Memphis-Natchez association, hilly
Mo	Morganfield silt
Pt	Pits
PvC2	Providence silt loam, 5 to 8 percent slopes, eroded
PvD2	Providence silt loam, 8 to 12 percent slopes, eroded
Rb	Robinsonville very fine sandy loam
Ro	Rosebloom silt loam
Sa	Sharkey clay
SH	Sharkey association
SmF	Smithdale-Lexington complex, 15 to 30 percent slopes
SX	Smithdale-Lexington association, hilly
Tu	Tunica silty clay

1/ The composition of these units is more variable than that of others in the survey area but has been controlled well enough to be interpreted for the expected use of the soils.

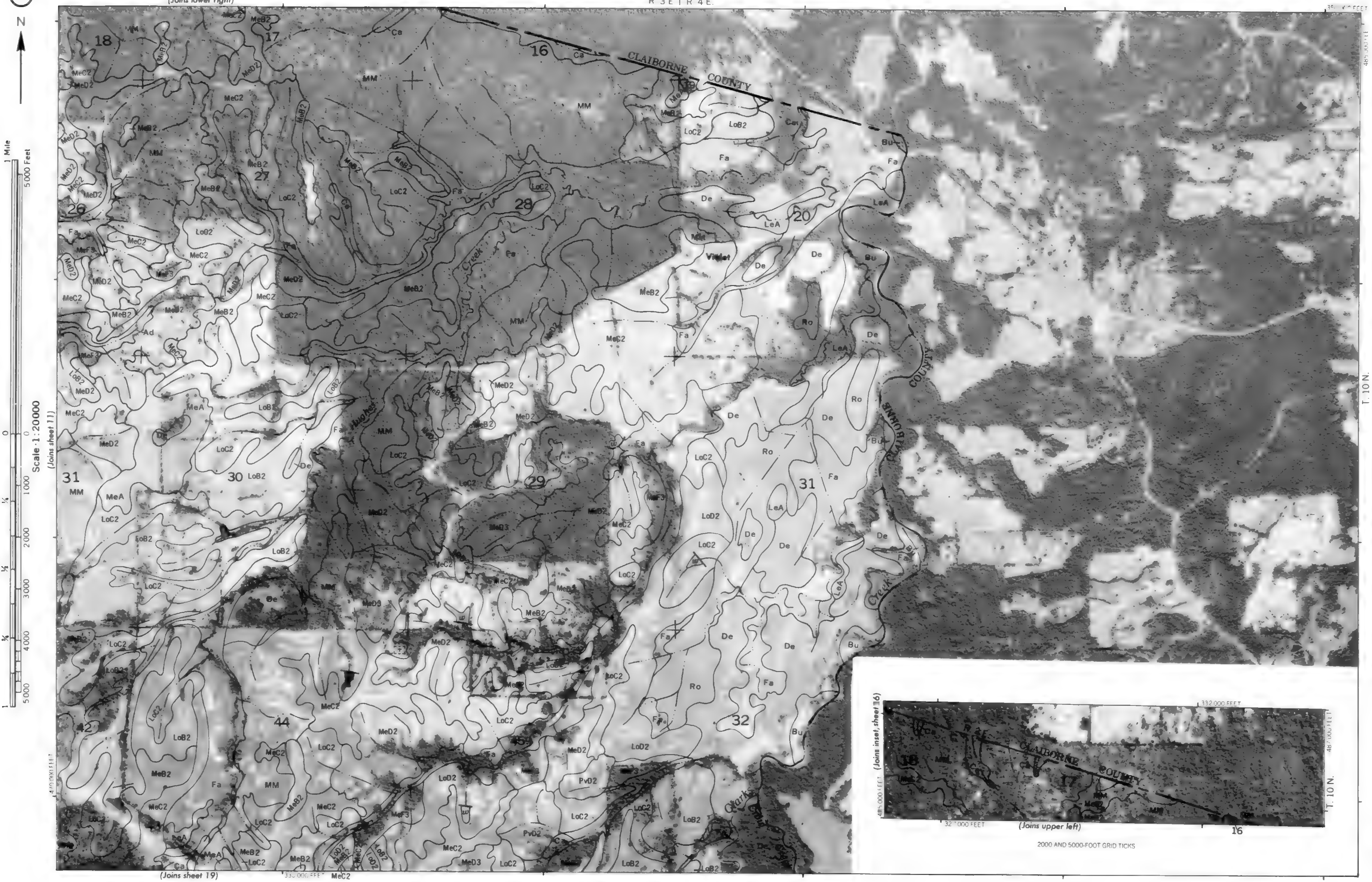

1
N
180 000 FEET
500 000 FEET
TENSAS PARISH
LOUISIANA
MISSISSIPPI RIVER
MISSISSIPPI
RIVER
29
Cv
28
30
31
Cv
R. 11 E.
R. 12 E.
BR
Rodney Island
Bu
SH
1
14
Spithead Towhead
2
3
4
37
5
6
7
8
9
10
Cv
BR
Bu
BR
T. 10 N.
Rodney Lake
Cv
200 000 FEET
490 000 FEET
(Joins sheet 6)
(Joins sheet 2)
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000


10
N
(Joins sheet 5)
R 2 E.
(Joins sheet 9)
(Joins sheet 11)
(Joins sheet 17)
T 10 N.
Scale 1:20000
1 Mile
5000 Feet
Lorman
Red Lick
Bakers Creek
Shankston Creek
Illinois Central
Gulf

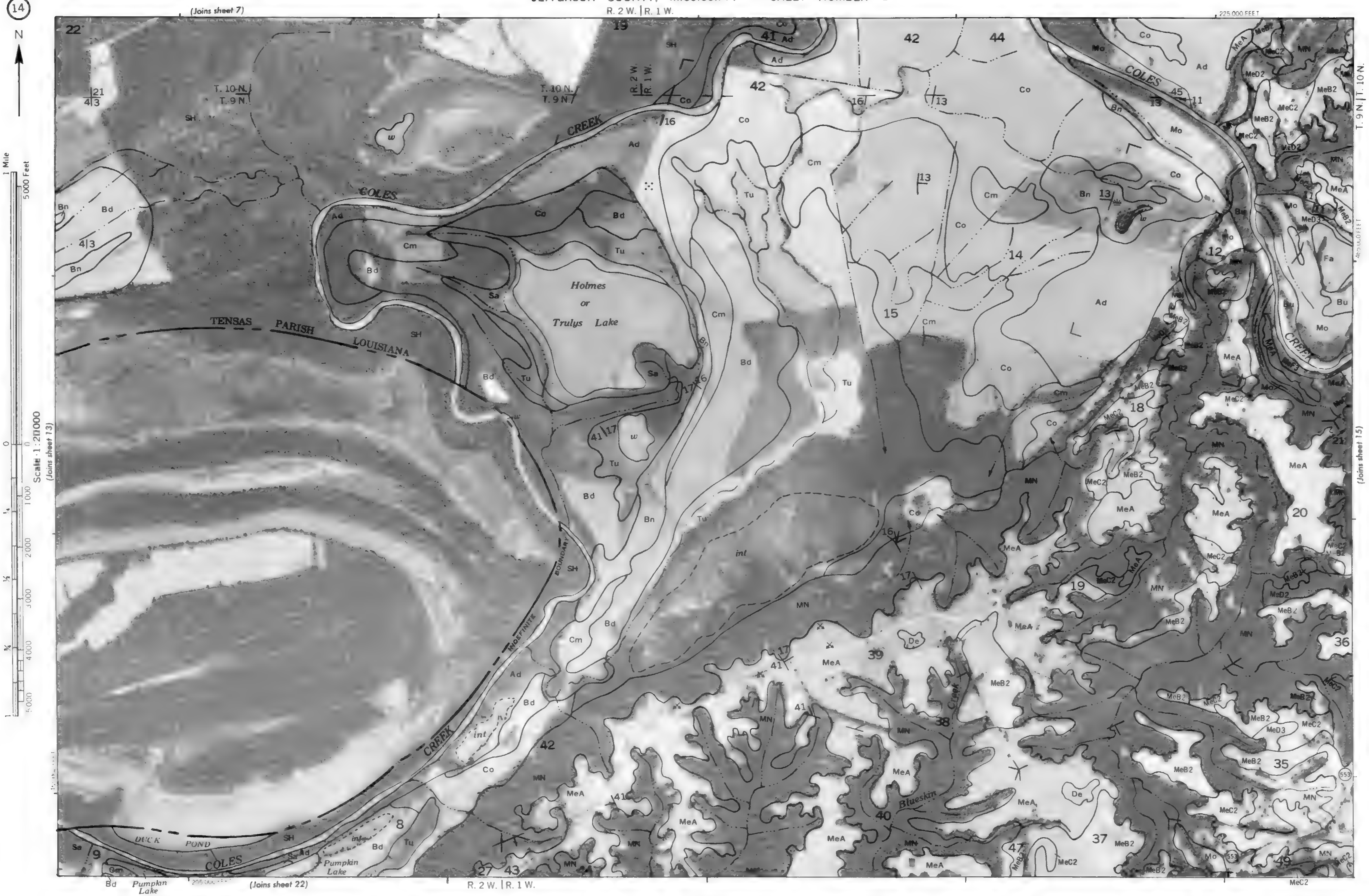

R 2 E | R 3 E.
(Joins inset, sheet 36)
(Joins sheet 10)
(Joins sheet 12)
(Joins sheet 18)
T. 10 N.
N
1 Mile
5000 Feet
Scale 1:20000
325 000 FEET
MM
MeB2
MeC2
MeD2
MeF3
LoB2
LoC2
De
Fa
Ca
Ad
LeA
Willis
Bradly Creek
ILLINOIS CENTRAL

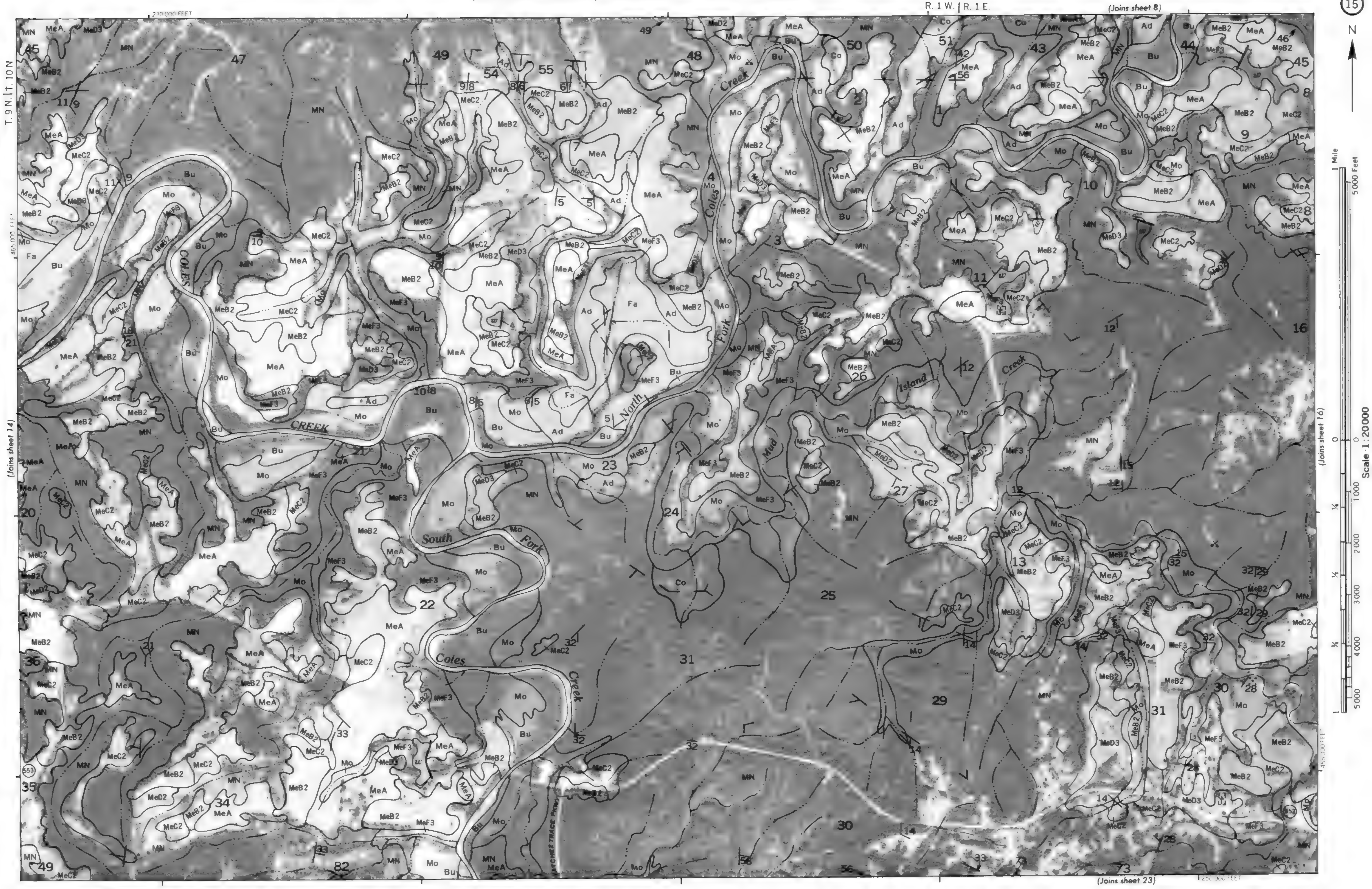
552

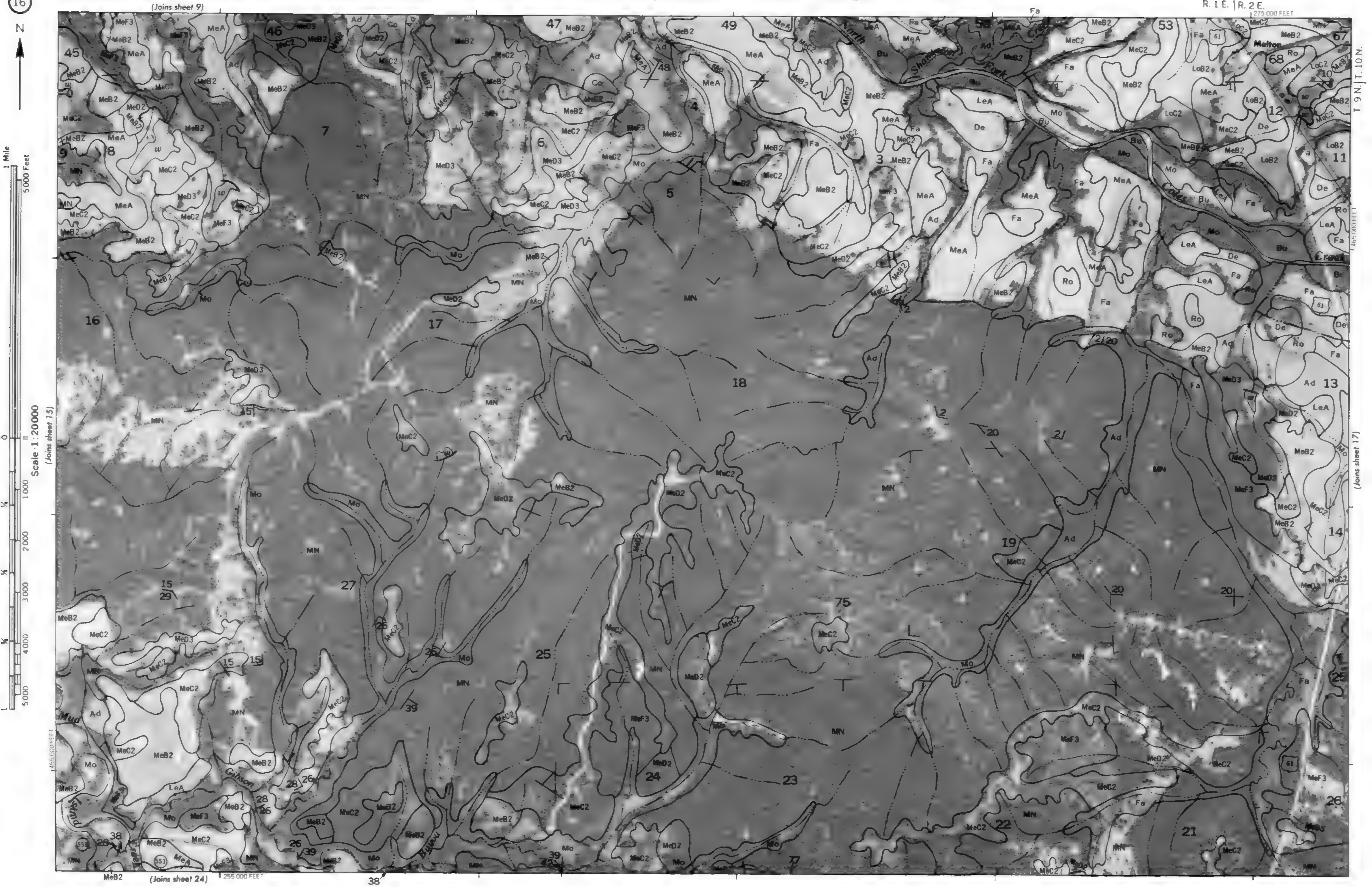
JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 12

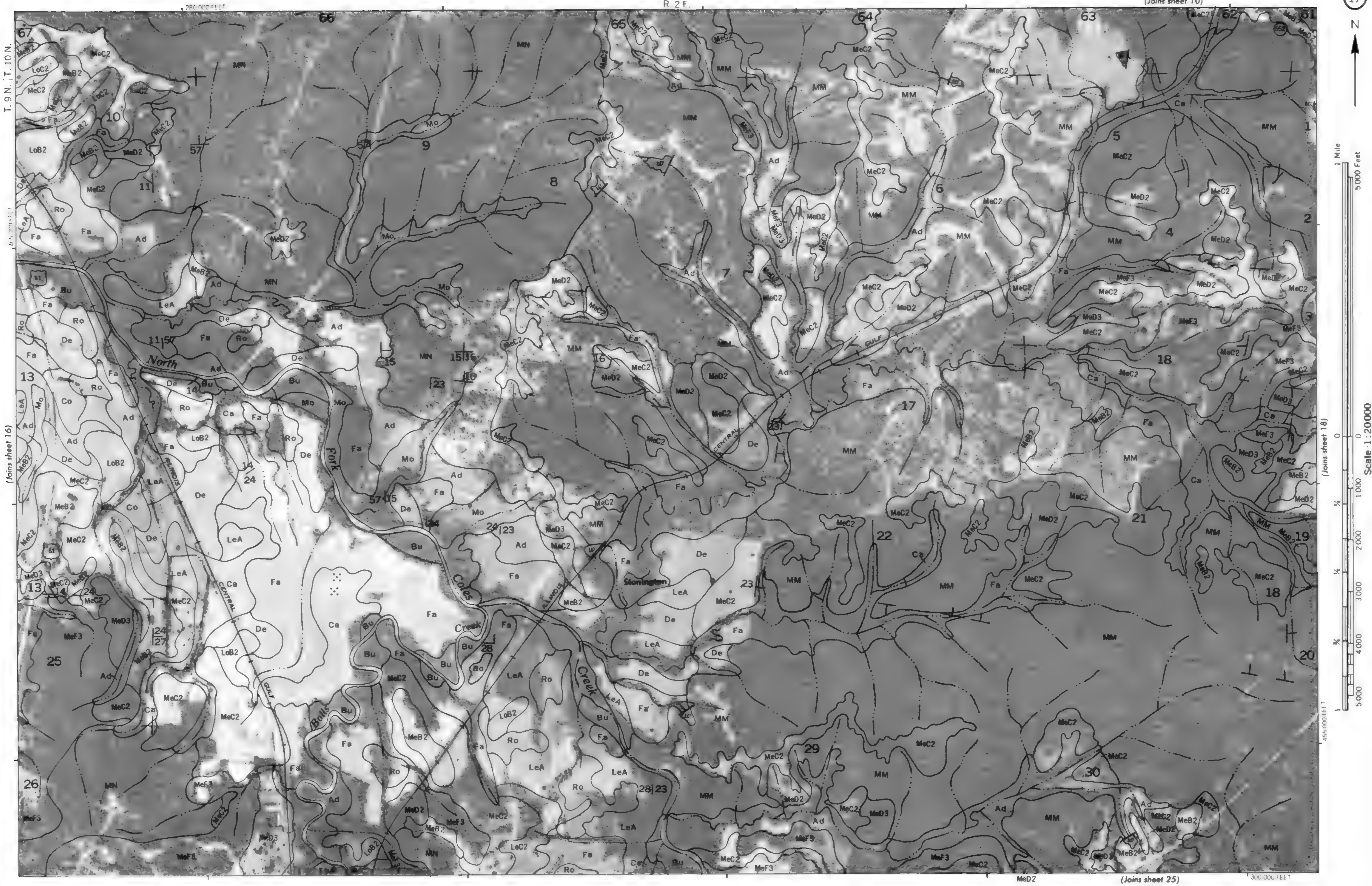



13
N
180 000 FEET
470 000 FEET
R. 2 W.
(Joins sheet 6)
T. 10 N.
T. 9 N.
(Joins sheet 14)
(Joins sheet 21)
200 000 FEET
485 000 FEET
1 Mile
5000 Feet
Scale 1:20000
MISSISSIPPI RIVER
TENSAS PARISH LOUISIANA
INDEFINITE BOUNDARY
Coles Island
Gum Ridge Chute
Baptizing Slough
COLES CREEK
Fairchilds Creek
ADAMS COUNTY
Junkins Lake
SH
Bd
Bn
Sa
Tu
Rb
Cm
Co
Ad
Mo
BR
Cv


14
N
(Joins sheet 7)
R. 2 W. | R. 1 W.
T. 10 N.
T. 9 N.
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 13)
(Joins sheet 15)
(Joins sheet 22)
COLES CREEK
Holmes or Trulys Lake
TENSAS PARISH LOUISIANA
INDEFINITE BOUNDARY
DUCK POND
Pumpkin Lake
Blueskin Creek

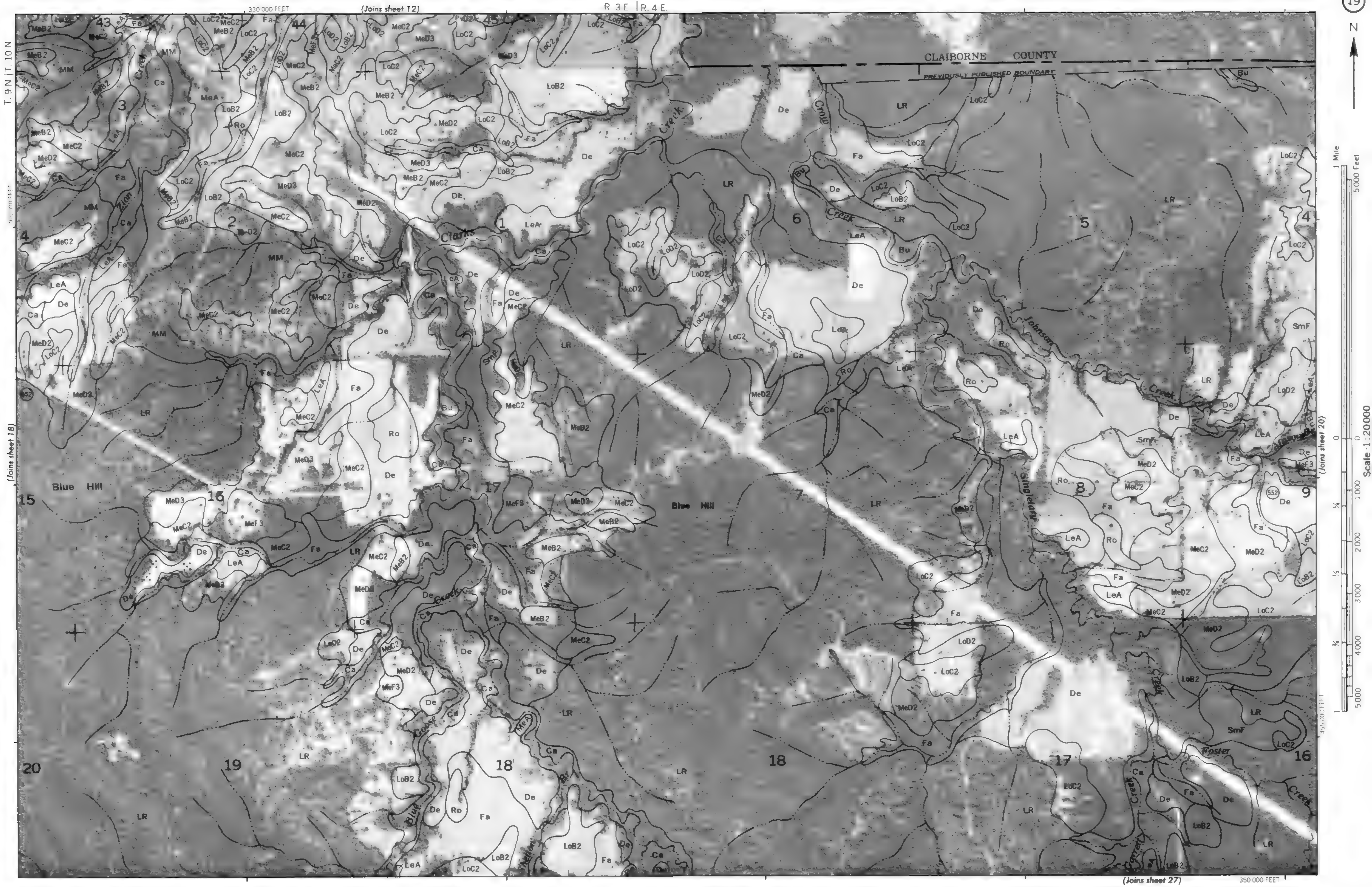

15
N
R. 1 W. | R. 1 E.
(Joins sheet 8)
T. 9 N. | T. 10 N.
(Joins sheet 14)
(Joins sheet 16)
(Joins sheet 23)
Scale 1:20000
1 Mile
5000 Feet
COLES CREEK
North Fork
Coles Creek
South Fork
Island Creek
Mud
NATCHEZ TRACE PKWY


N
(Joins sheet 9)
(Joins sheet 15)
(Joins sheet 17)
(Joins sheet 24)
R. 1 E. | R. 2 E.
T. 9 N. | T. 10 N.
275 000 FEET
255 000 FEET
1 Mile
5000 Feet
Scale 1:20000
North Fork
Coles Creek
Gibson
Bayou
Melton

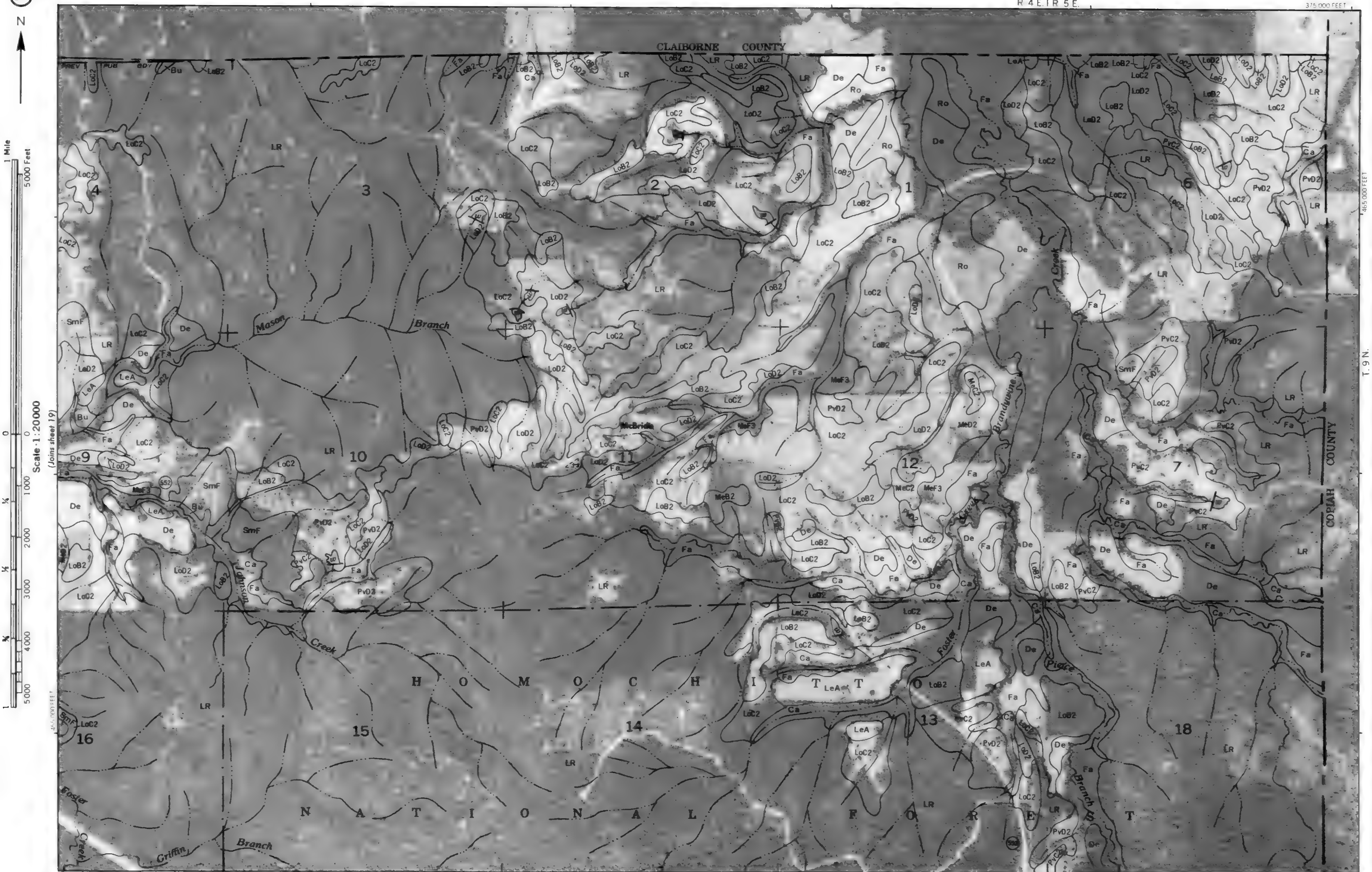


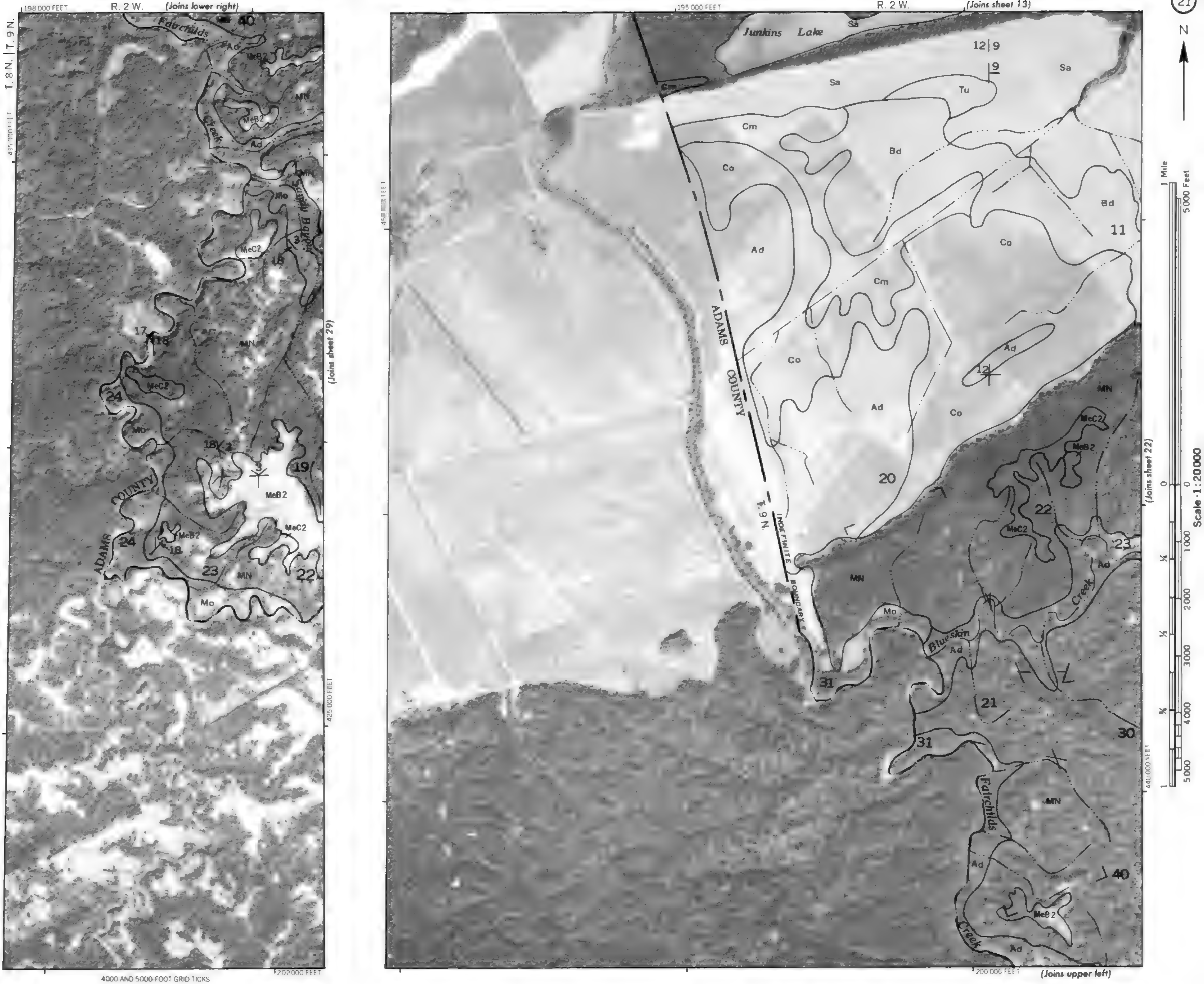
(17)
N
R. 2 E.
T. 9 N. | T. 10 N.
280 000 FEET
300 000 FEET
(Joins sheet 10)
(Joins sheet 16)
(Joins sheet 18)
(Joins sheet 25)
North
Fork
Coles
Creek
Bells
Stonington
CENTRAL
GULF
ILLINOIS
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
MM
MN
MeC2
MeD2
MeD3
MeF3
MeB2
LoB2
LoC2
LeA
Fa
Ad
De
Ro
Bu
Ca
Co
Mo

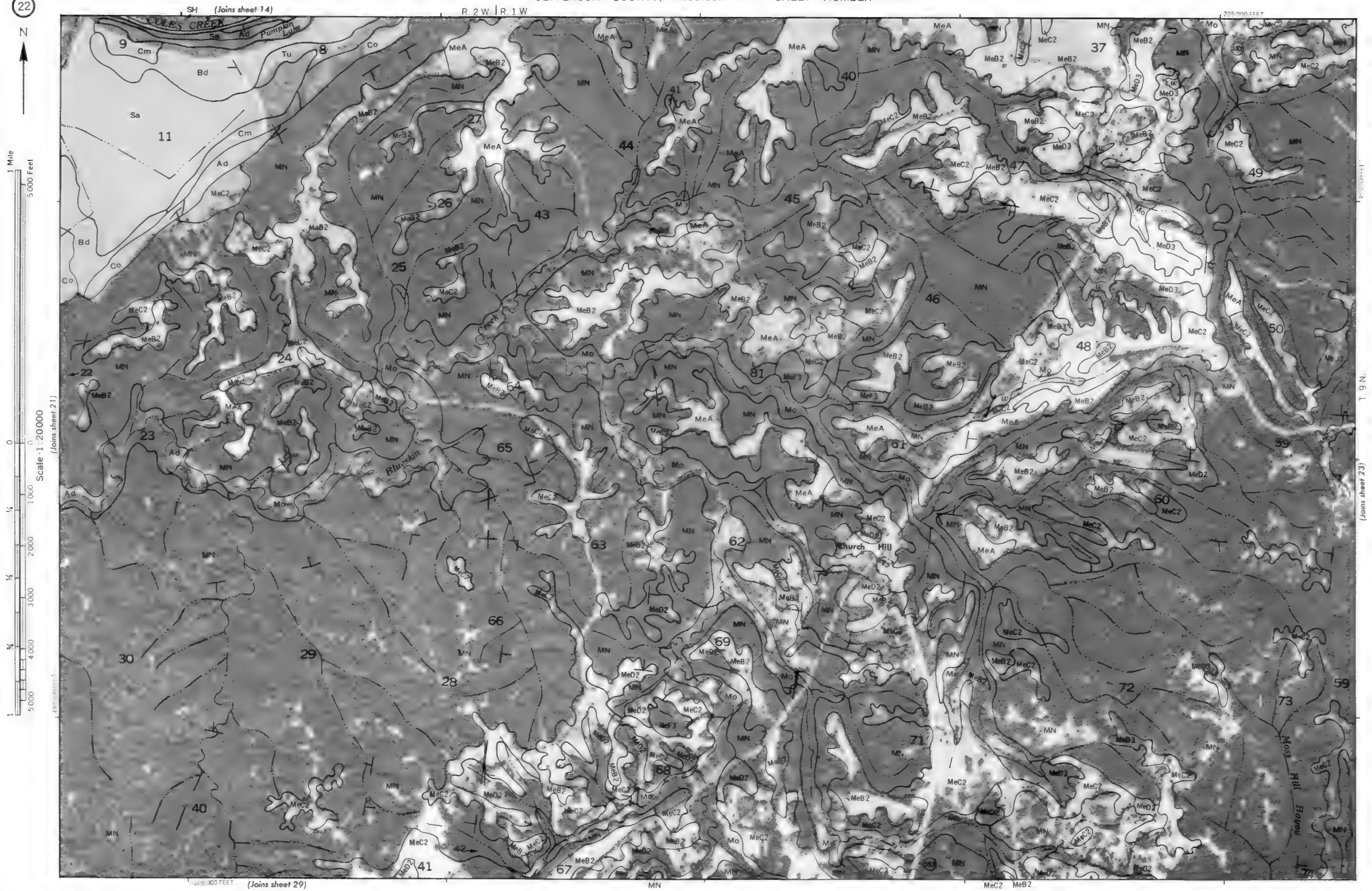

18
N
(Joins sheet 11)
R 2 E. | R. 3 E.
325 000 FEET
T. 9 N. | T. 10 N.
(Joins sheet 17)
(Joins sheet 19)
(Joins sheet 26)
305 000 FEET
Scale 1:20000
1 Mile
5000 Feet
Brady Creek
Blue Hill

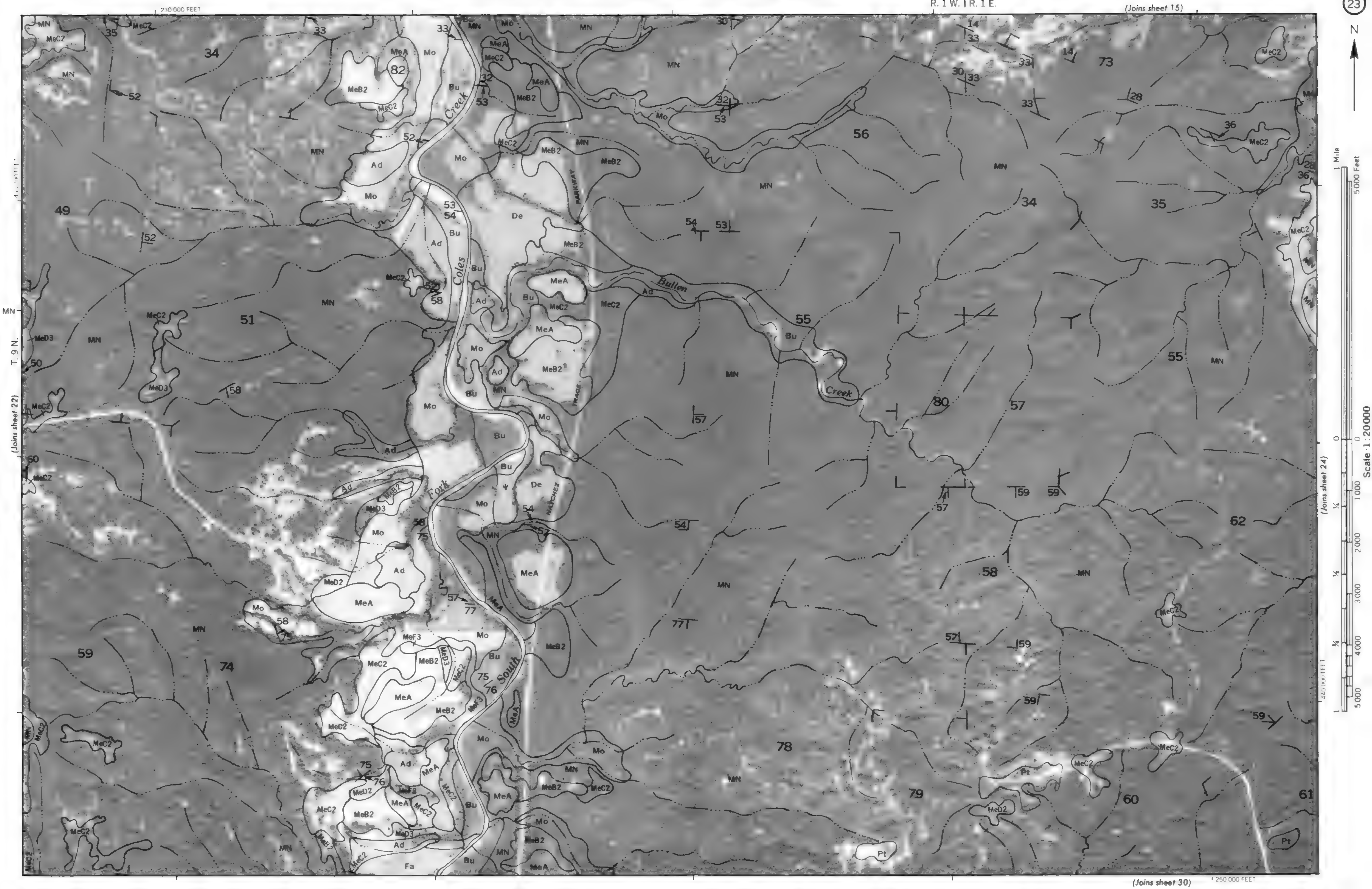

(Joins sheet 12)
330 000 FEET
R. 3 E. | R. 4 E.
T. 9 N. | T. 10 N.
CLAIBORNE COUNTY
PREVIOUSLY PUBLISHED BOUNDARY
(Joins sheet 18)
(Joins sheet 20)
(Joins sheet 27)
350 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
Blue Hill
Clarks Creek
Crow Creek
Johnson Creek
Zion Creek
Singletary Creek
Goose Creek
Foster Creek
Garrett Creek
Blue Creek
Nelson Br.
552

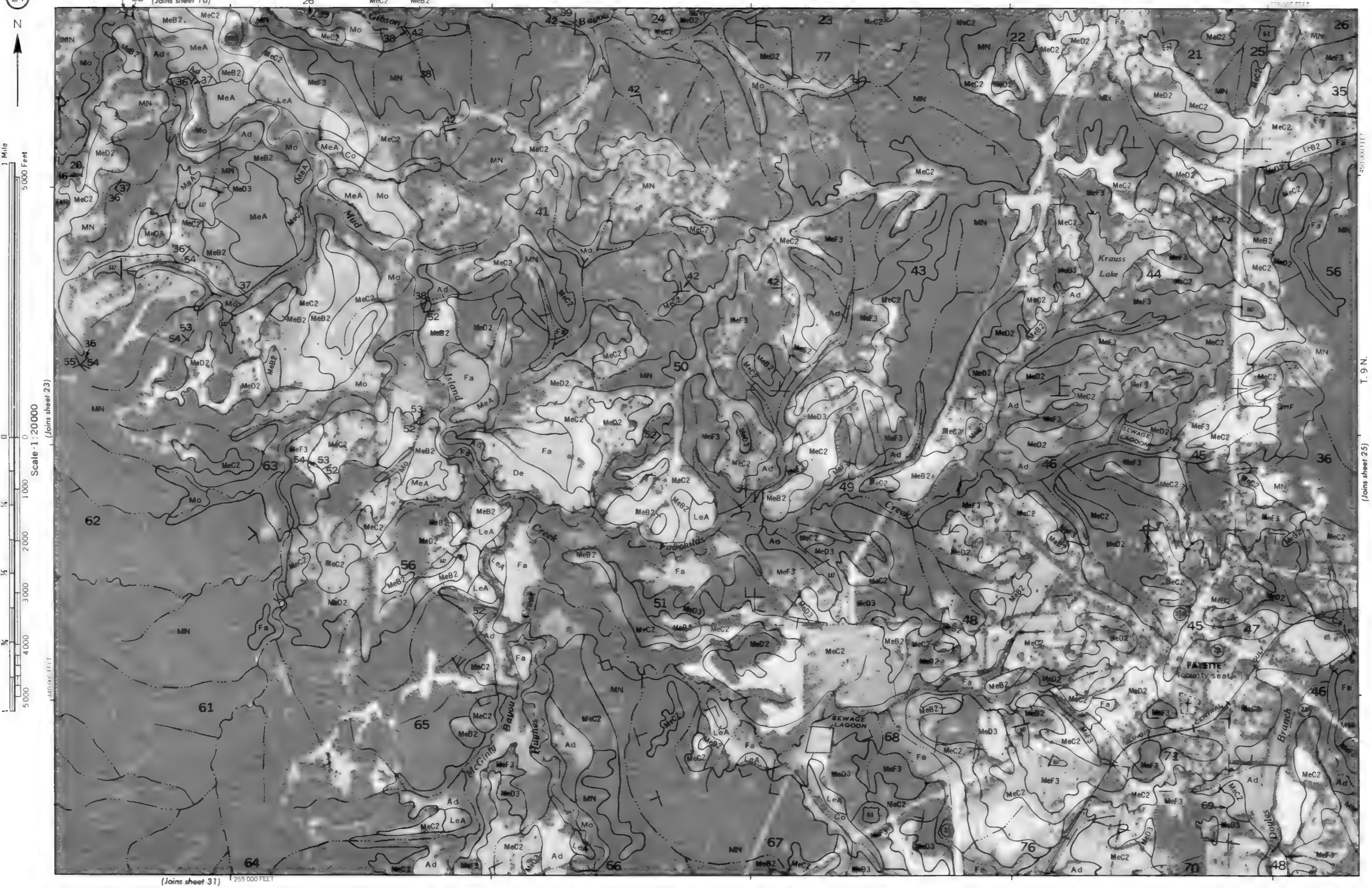

N
1 Mile
5000 Feet
Scale 1:20000
MISSISSIPPI RIVER
TENSAS PARISH LOUISIANA
CLAIBORNE COUNTY
R. 1 W.
T. 10 N.
Flatland Lake
Piazza Lake
Bush Lake
Mill
Dowd Creek
Rodney Island
LOUISIANA
TENSAS PARISH
(Joins sheet 1)
(Joins sheet 3)
(Joins sheet 7)
225 000 FEET
500 000 FEET
490 000 FEET
205 000 FEET
Cv
Rb
Bu
Bn
Cm
Bd
Tu
SH
BR
Ad
Mo
Co
w

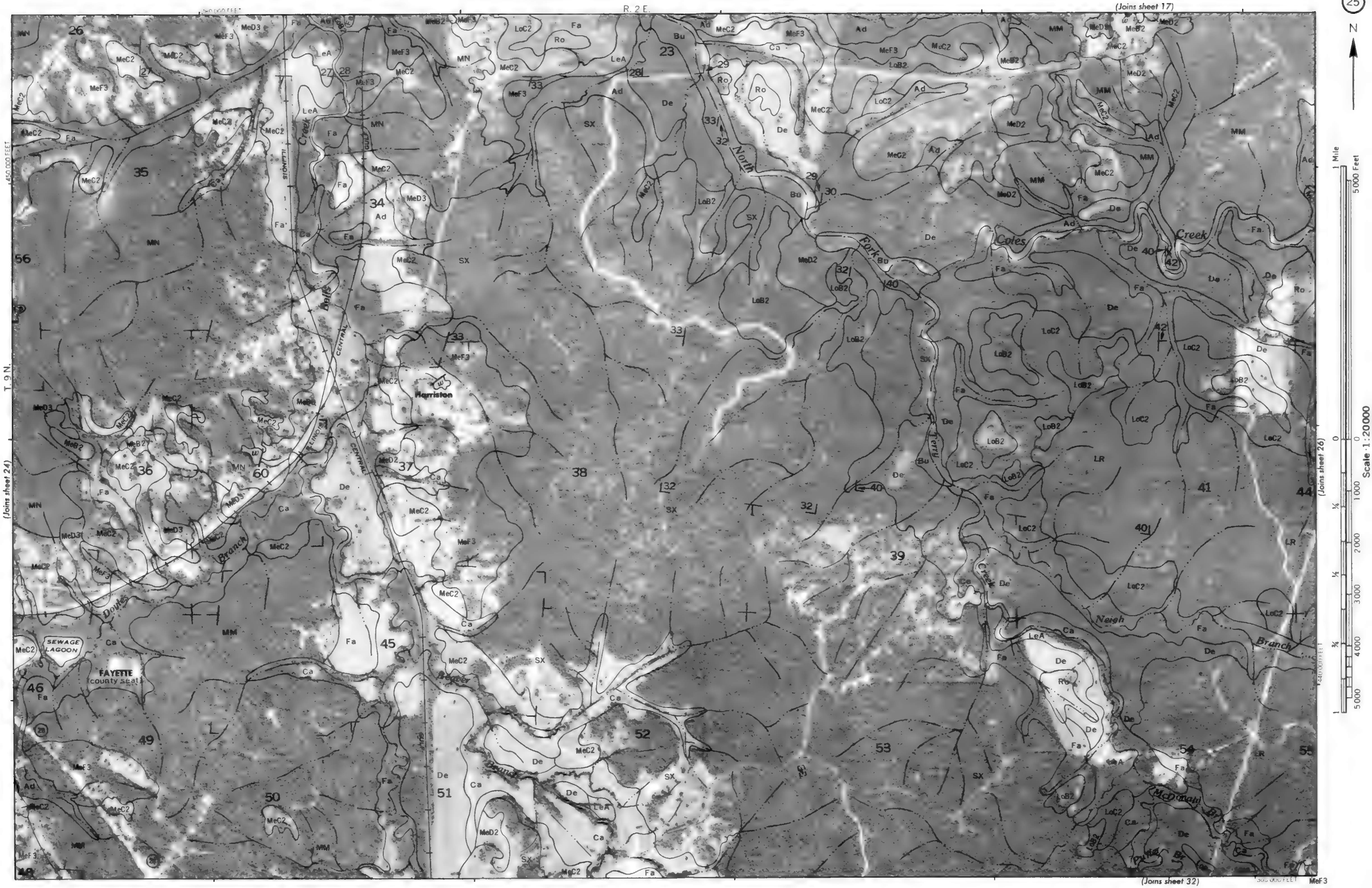

N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 19)
R 4 E. | R 5 E.
375 000 FEET
465 000 FEET
T. 9 N.
CLAIBORNE COUNTY
COPIAH COUNTY
Mason Branch
Brandywine Creek
McBride
Johnson Creek
Foster Creek
Pierce Branch
Griffin Branch
H O M O C H I T T O
N A T I O N A L F O R E S T
355 000 FEET
(Joins sheet 28)


21
N
198 000 FEET
R. 2 W.
(Joins lower right)
T. 9 N.
T. 8 N.
435 000 FEET
(Joins sheet 29)
425 000 FEET
202 000 FEET
4000 AND 5000-FOOT GRID TICKS
Fairchilds
Creek
Sandy Bayou
ADAMS
COUNTY
195 000 FEET
R. 2 W.
(Joins sheet 13)
Junkins Lake
ADAMS COUNTY
T. 9 N.
INDEFINITE BOUNDARY
Blueskin
Creek
Fairchilds
Creek
(Joins sheet 22)
440 000 FEET
200 000 FEET
(Joins upper left)
1 Mile
5000 Feet
Scale 1:20000
Sa
Tu
Cm
Bd
Co
Ad
MN
MeB2
MeC2
Mo
12
9
11
20
22
23
21
30
31
40
17
18
19
24

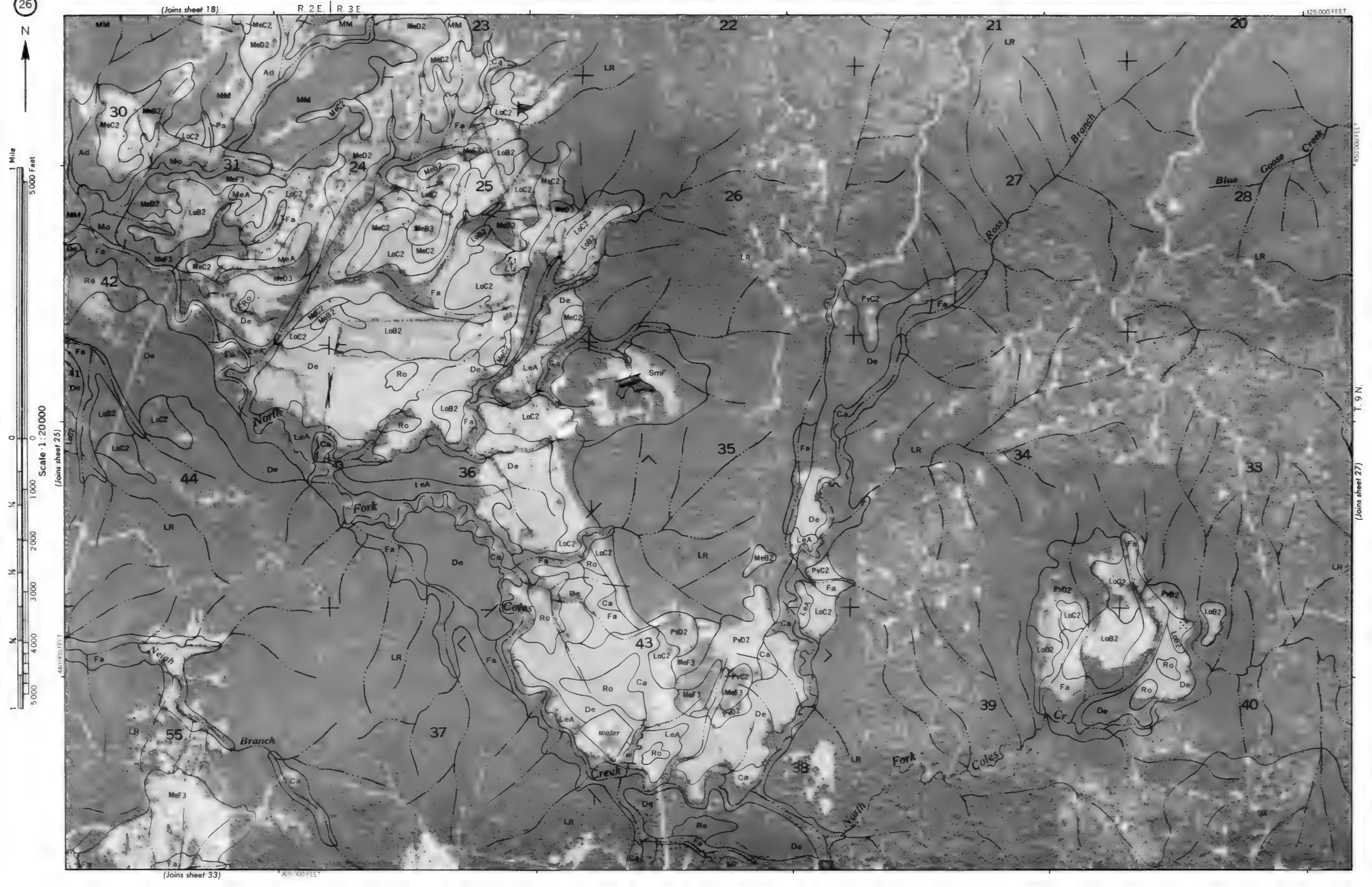

22
N
(Joins sheet 14)
R. 2 W. | R. 1 W.
(Joins sheet 21)
(Joins sheet 23)
(Joins sheet 29)
Scale 1:20000
1 Mile
5000 Feet
T. 9 N.
Church Hill
Coles Creek
Moss Hill Bayou

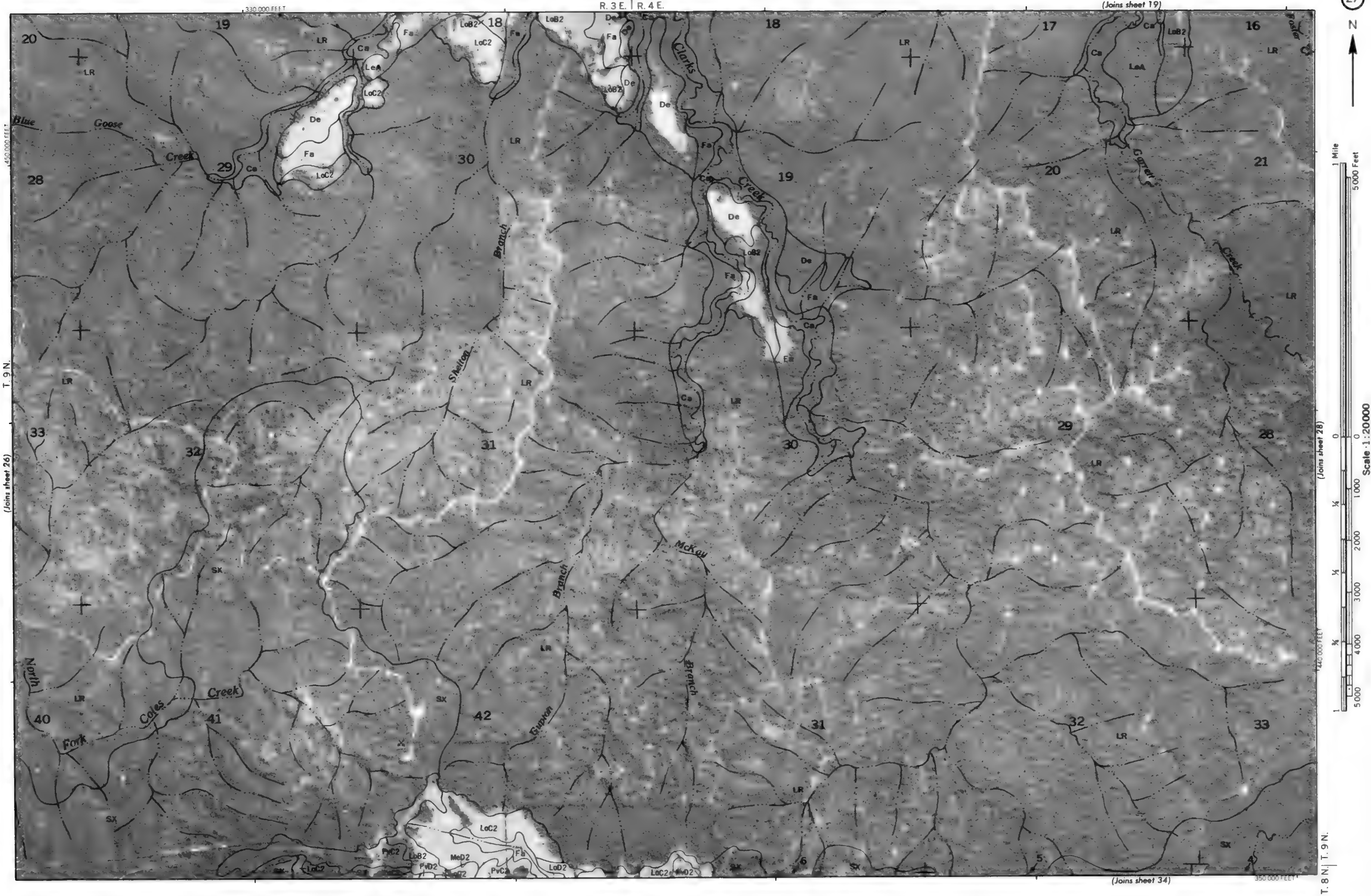

23
N
R. 1 W. | R. 1 E.
(Joins sheet 15)
(Joins sheet 22)
(Joins sheet 24)
(Joins sheet 30)
T. 9 N.
230 000 FEET
250 000 FEET
440 000 FEET
Scale 1:20000
1 Mile
5000 Feet
Coles Creek
Bullen Creek
South Fork
NATCHEZ TRACE PARKWAY
MN
MeC2
MeB2
MeA
MeD2
MeD3
MeF3
Mo
Ad
Bu
De
Pt
Fa


N
(Joins sheet 16)
(Joins sheet 23)
(Joins sheet 25)
(Joins sheet 31)
R. 1 E. | R. 2 E.
T. 9 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
255 000 FEET
Gibson
Bayou
Mud
Island
Creek
Fairchilds
Creek
McGinty
Bayou
Hughes
Creek
Krauss
Lake
SEWAGE LAGOON
SEWAGE LAGOON
FAYETTE
County seat
Branch
Doyles

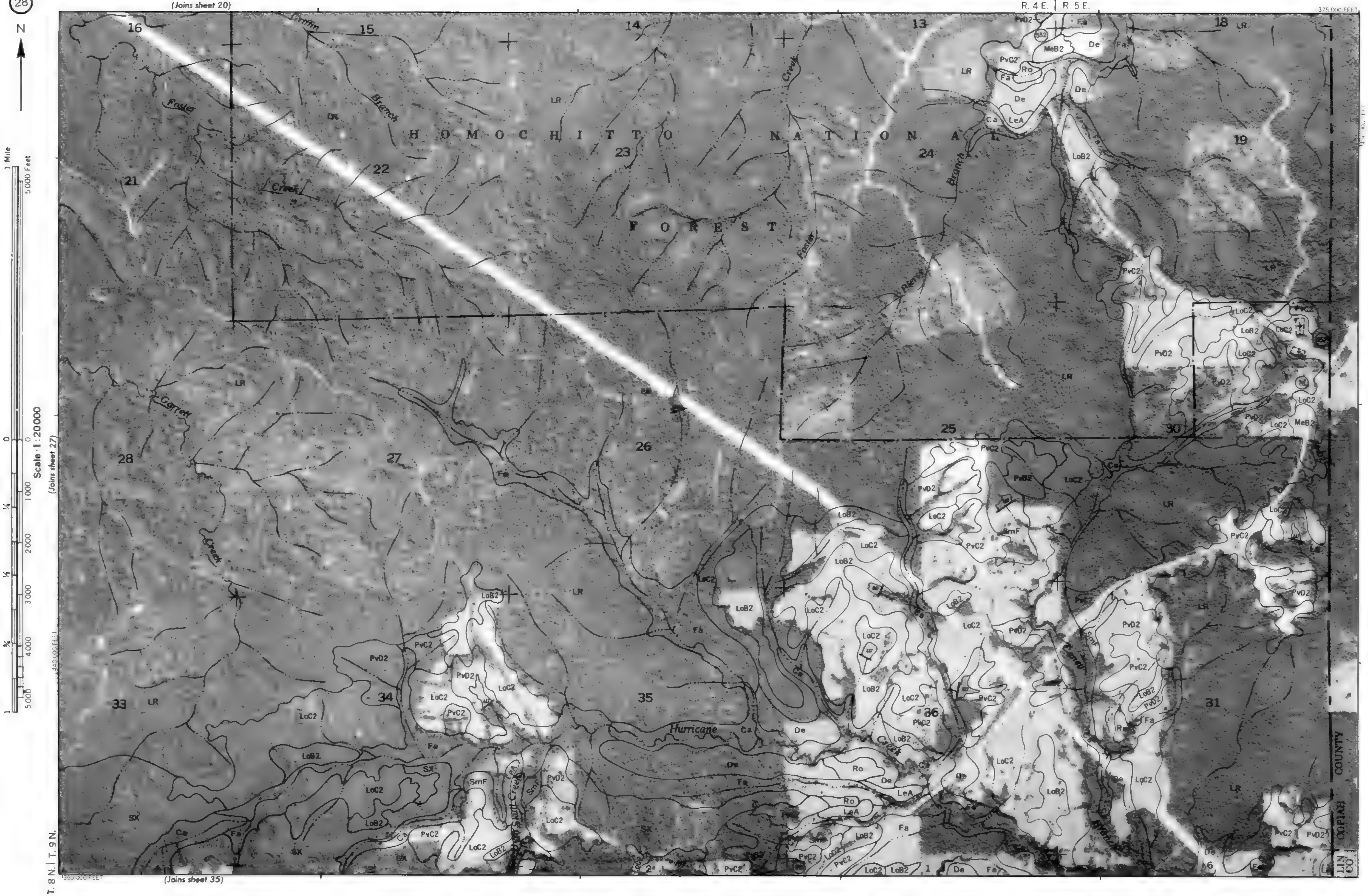


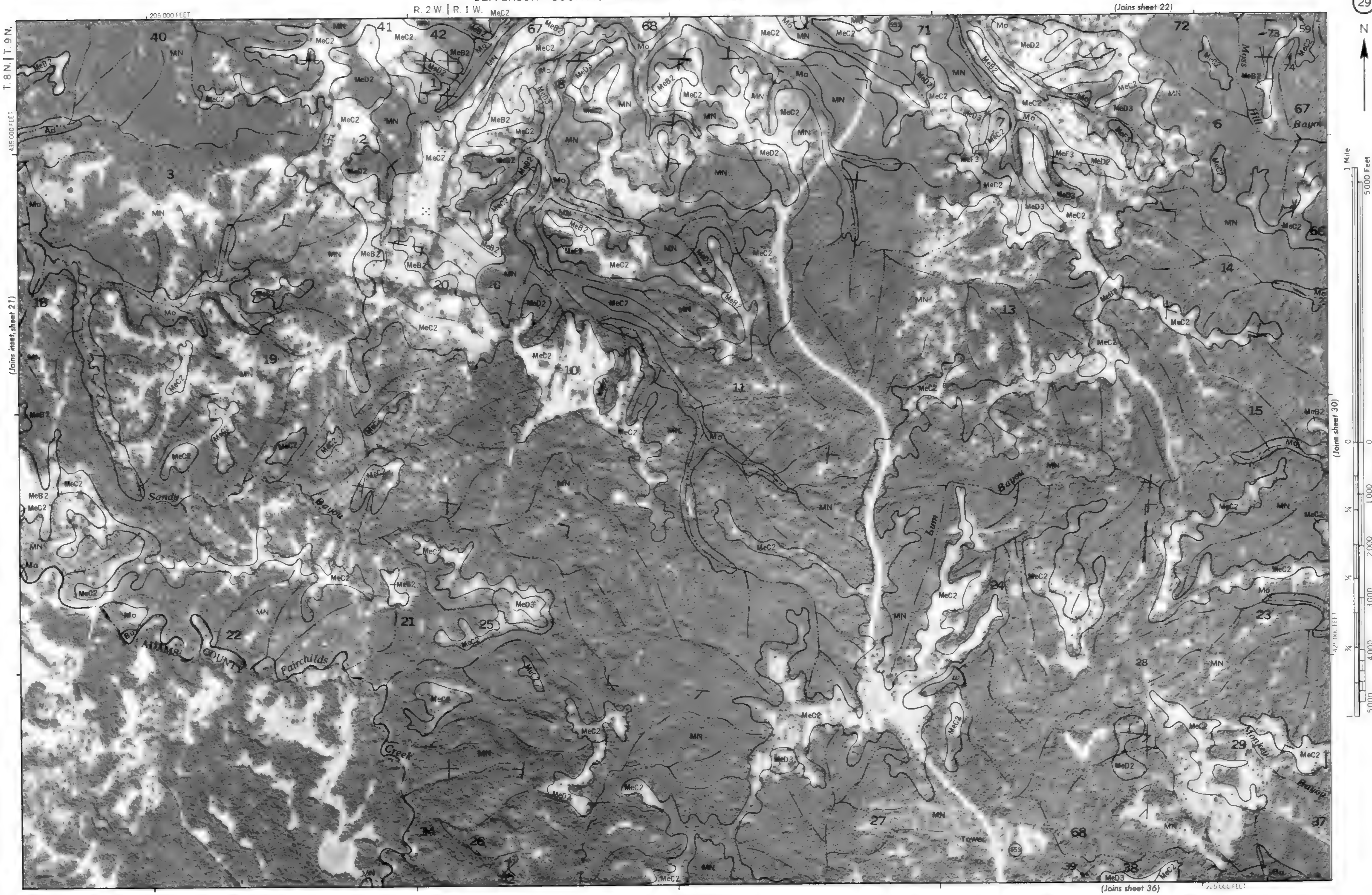
25
N
R. 2 E.
T. 9 N.
(Joins sheet 17)
(Joins sheet 24)
(Joins sheet 26)
(Joins sheet 32)
Scale 1:20000
1 Mile
5000 Feet
Harriston
SEWAGE LAGOON
FAYETTE
county seat
Coles Creek
North Fork
Terry Creek
Neigh Branch
McDonald Br
CENTRAL

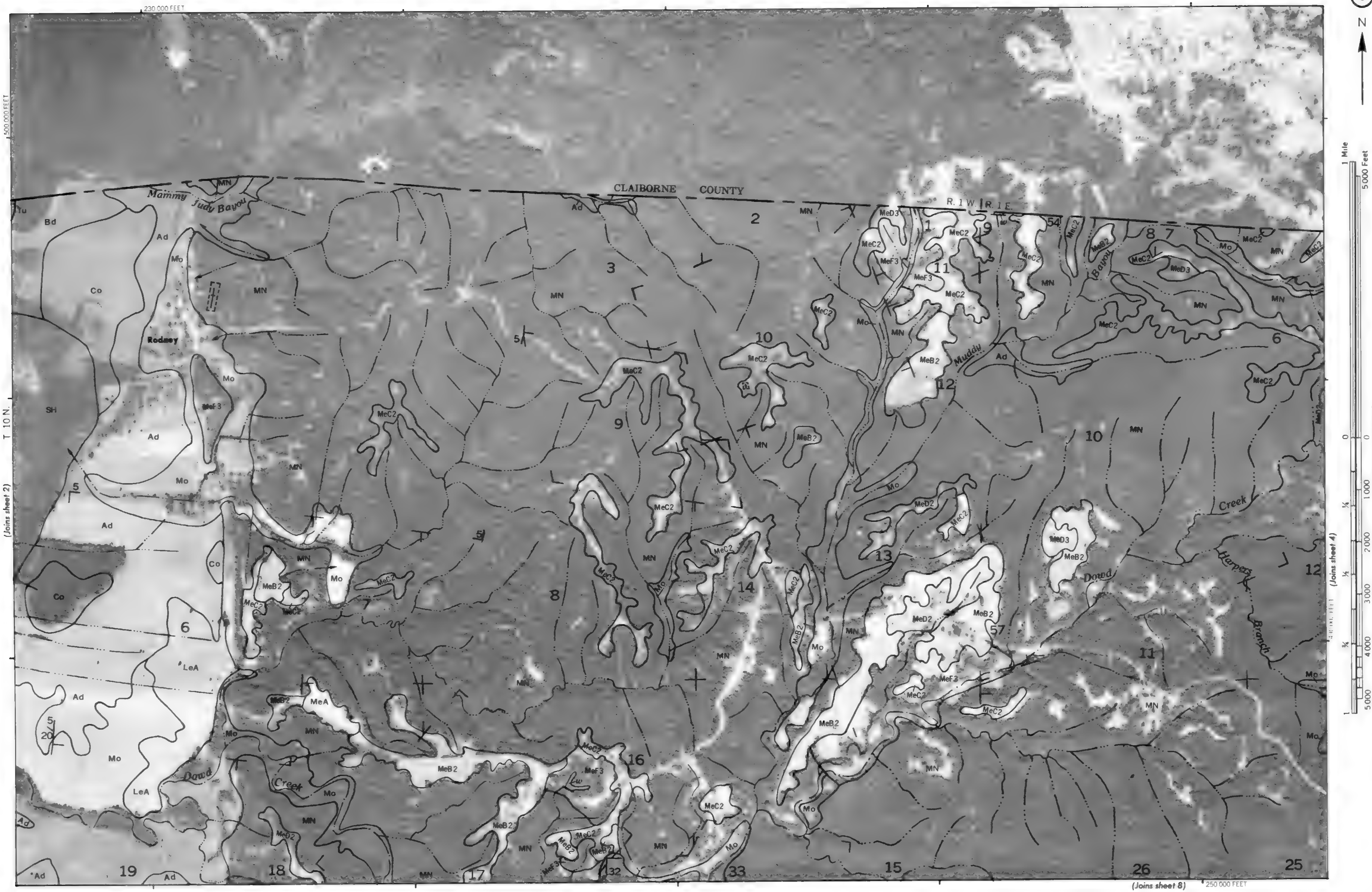

(Joins sheet 18)
R. 2 E. | R. 3 E.
N
(Joins sheet 25)
(Joins sheet 27)
(Joins sheet 33)
T. 9 N.
Scale 1:20000
1 Mile
5000 Feet
North Fork
Coles Creek
Neigh Branch
Ross Branch
Blue Goose Creek
Coles Fork
Coles Cr
North Fork
water


27
N
R. 3 E. | R. 4 E.
330 000 FEET
(Joins sheet 19)
(Joins sheet 26)
(Joins sheet 28)
(Joins sheet 34)
450 000 FEET
440 000 FEET
350 000 FEET
T. 9 N.
T. 8 N. | T. 9 N.
Blue Goose Creek
Clarks Creek
Garrett Creek
Shelton Branch
McKay
Branch
Gunon Branch
North Fork Coles Creek
Foster
1 Mile
5000 Feet
Scale 1:20000
LR
De
Fa
Ca
LeA
LoC2
LoB2
LoD2
MeD2
PvC2
PvD2
SX
19
18
17
16
20
21
28
29
30
31
32
33
40
41
42
5
4
6

JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 28

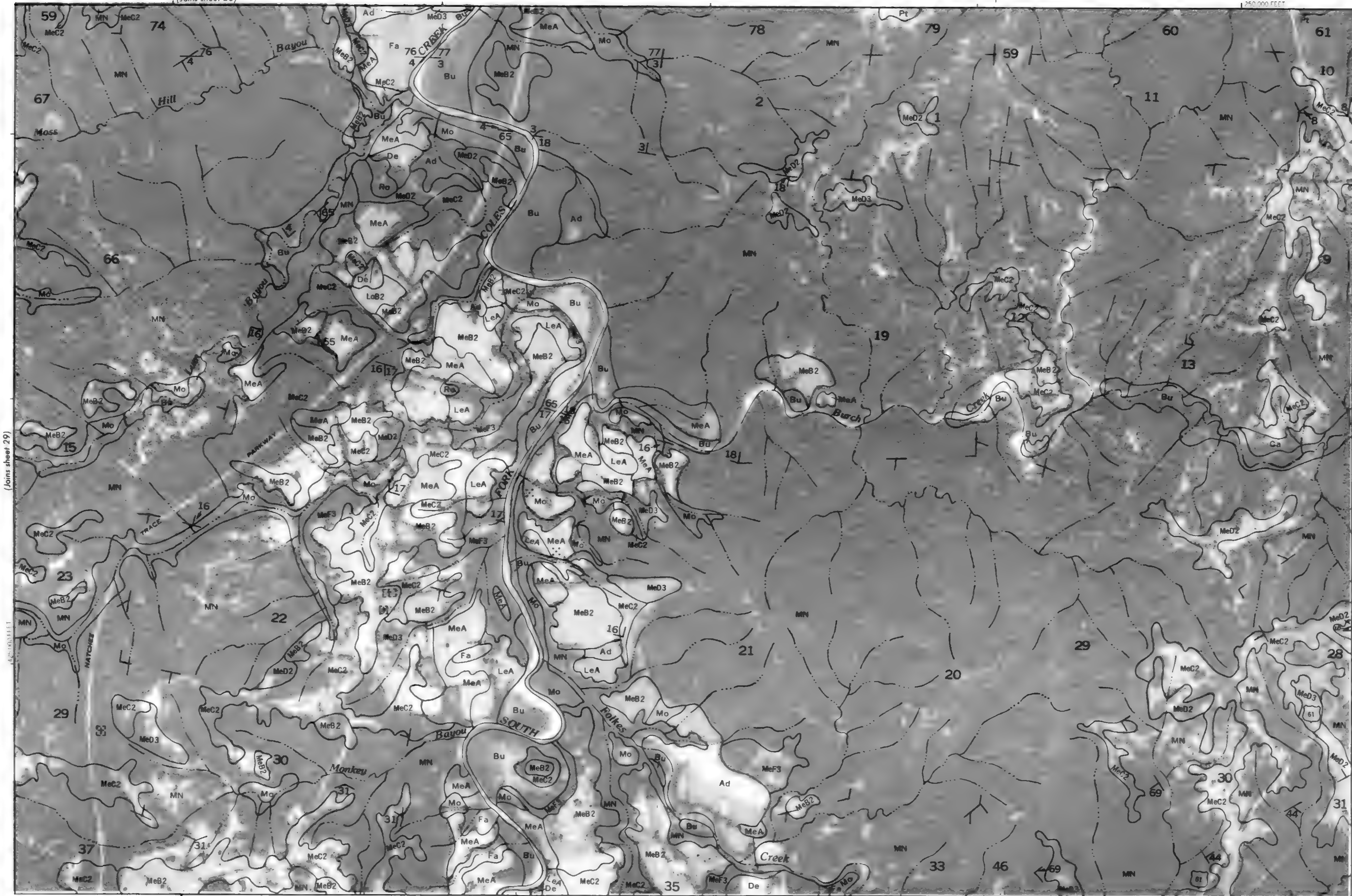



29
N
R. 2 W. | R. 1 W.
T. 8 N. | T. 9 N.
205 000 FEET
435 000 FEET
225 000 FEET
(Joins sheet 22)
(Joins inset, sheet 21)
(Joins sheet 30)
(Joins sheet 36)
Scale 1:20000
1 Mile
5000 Feet
0
¼
½
¾
1000
2000
3000
4000
5000
Sandy Bayou
Fairchilds Creek
ADAMS COUNTY
Lum Bayou
Moss Hill
Monkey Bayou
Bayou
Tower
553


3
N
230 000 FEET
500 000 FEET
CLAIBORNE COUNTY
Mammy Judy Bayou
Rodney
Muddy Bayou
Creek
Harpers Branch
Dowd
Dowd Creek
R. 1 W. R. 1 E.
T. 10 N.
(Joins sheet 2)
(Joins sheet 4)
(Joins sheet 8)
250 000 FEET
1 Mile
5000 Feet
Scale 1:20000

(Joins sheet 23)

R. 1 W. | R. 1 E.



N

1 Mile
5 000 Feet
Scale 1:20000

(Joins sheet 29)

(Joins sheet 31)

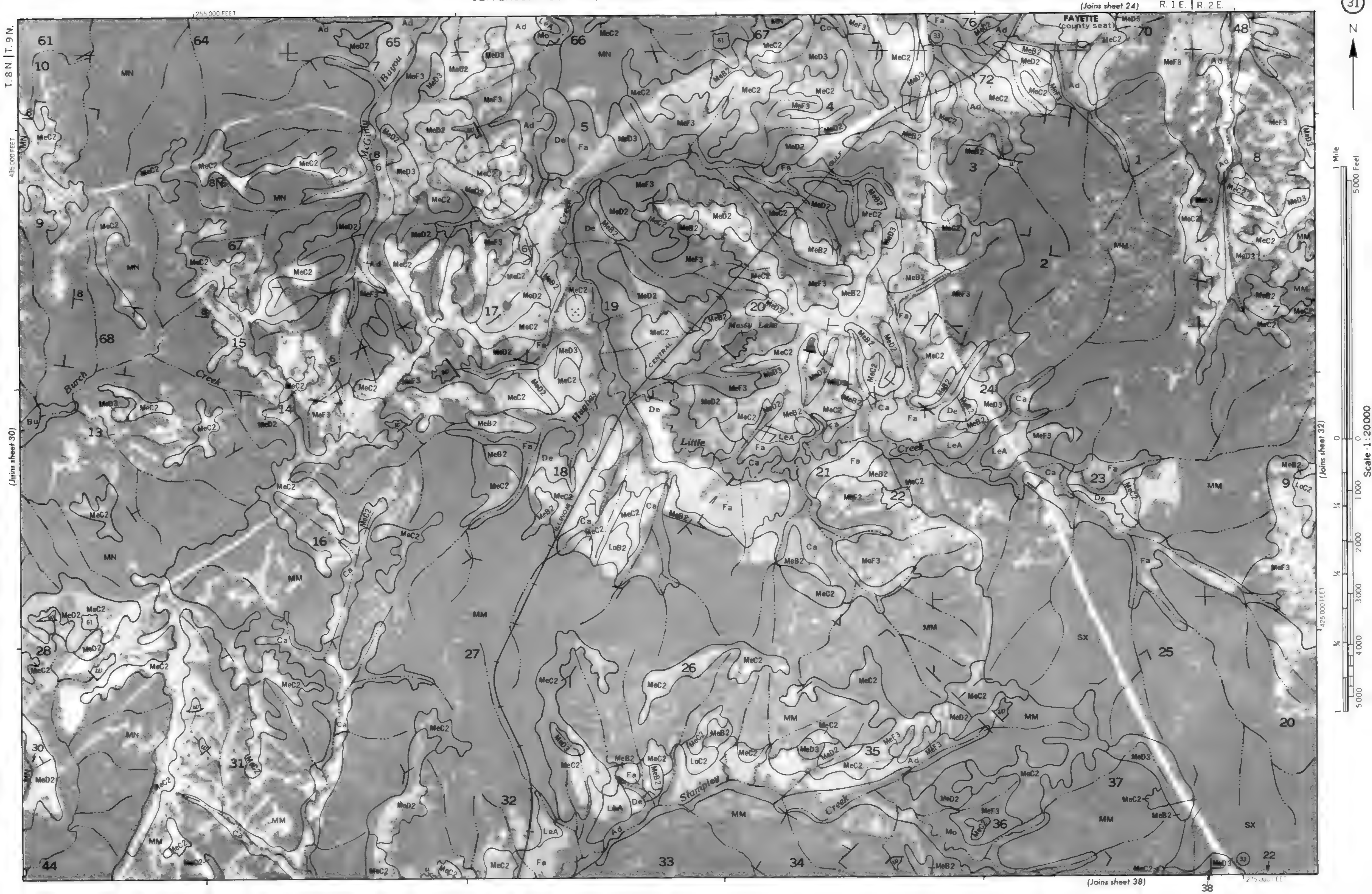
T. 8 N. | T. 9 N.

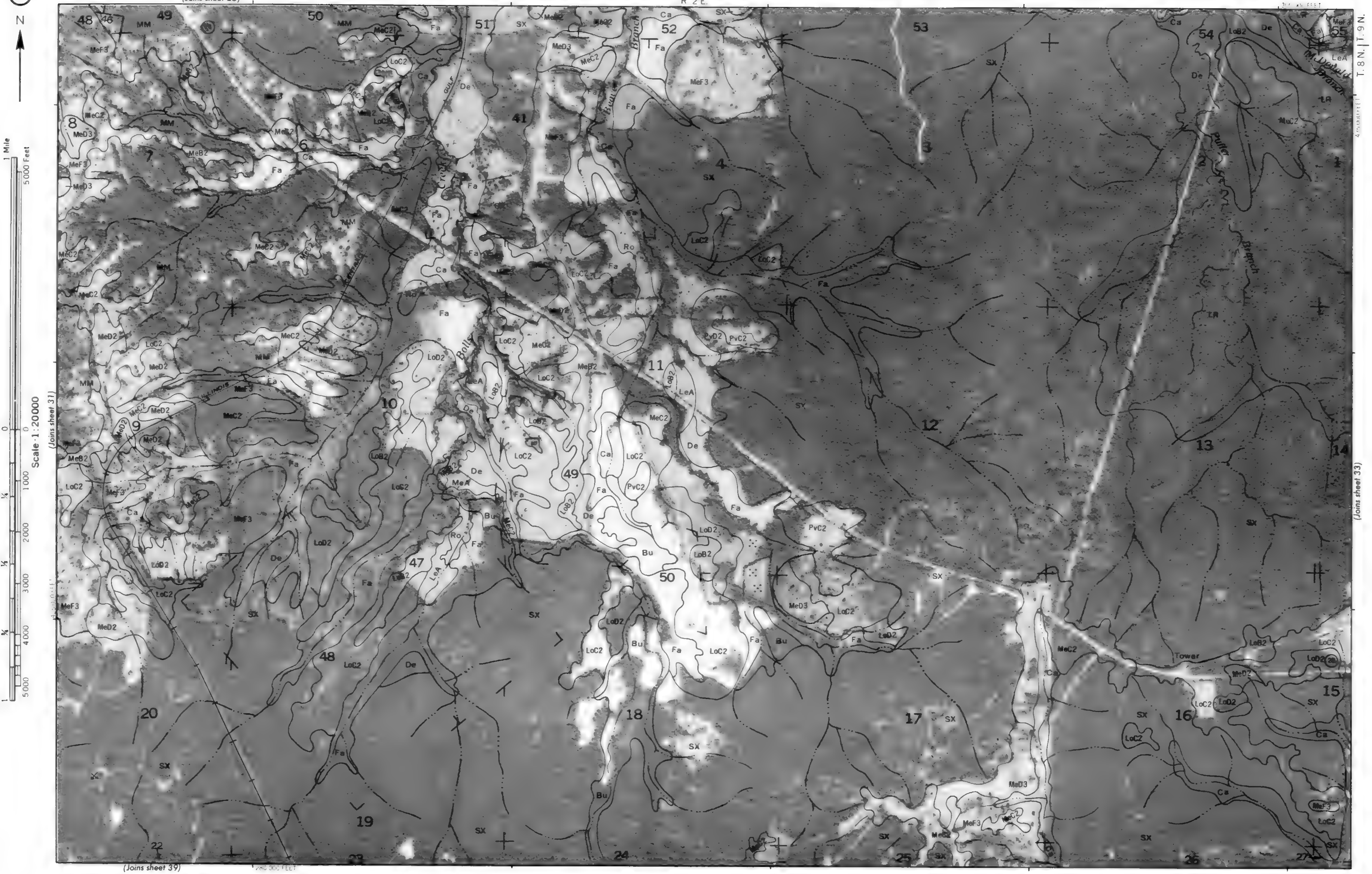
250 000 FEET

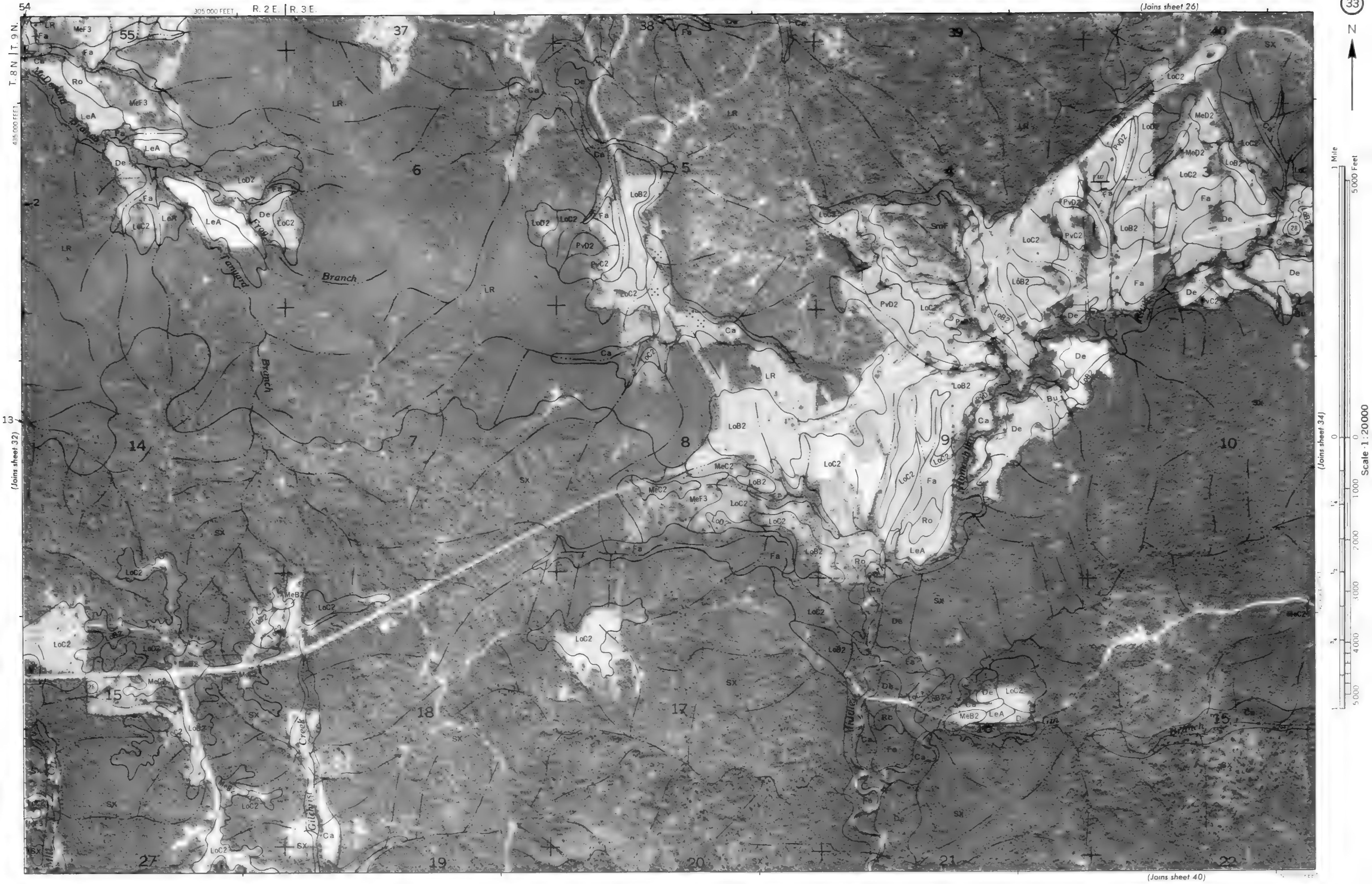
435 000 FEET

(Joins sheet 37)

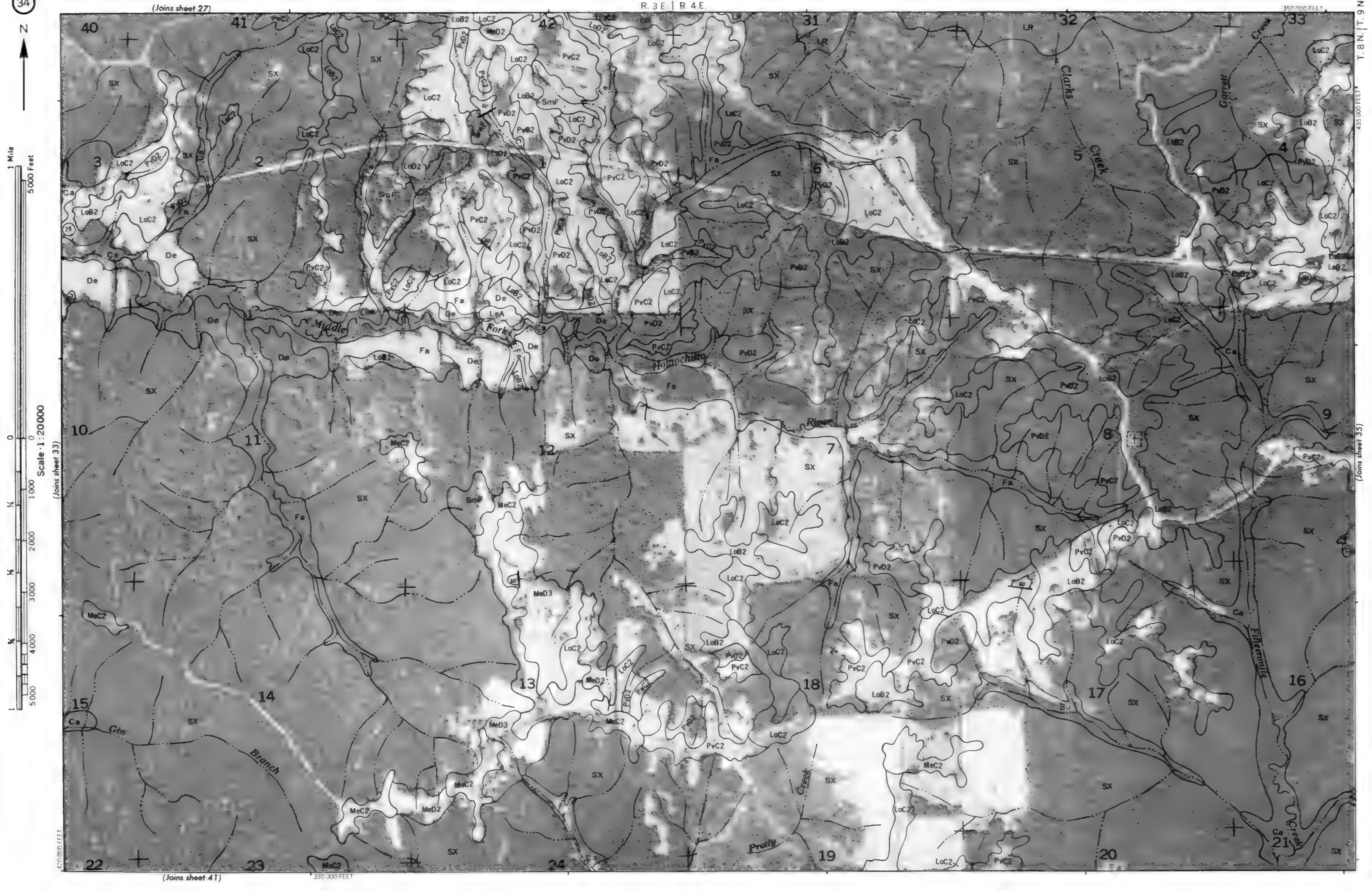
230 000 FEET


31
(Joins sheet 24)
R. 1 E. | R. 2 E.
T. 8 N. | T. 9 N.
FAYETTE
(county seat)
N
(Joins sheet 30)
(Joins sheet 32)
(Joins sheet 38)
Burch Creek
McGinty Bayou
Hughes Creek
Little Creek
Stampley Creek
Massy Lake
ILLINOIS CENTRAL GULF
1 Mile
5000 Feet
Scale 1:20000
435 000 FEET
425 000 FEET
215 000 FEET
MN
MM
SX
MeC2
MeD2
MeD3
MeB2
MeF3
LeA
LoB2
LoC2
Fa
De
Ca
Ad
Mo
Bu
Co

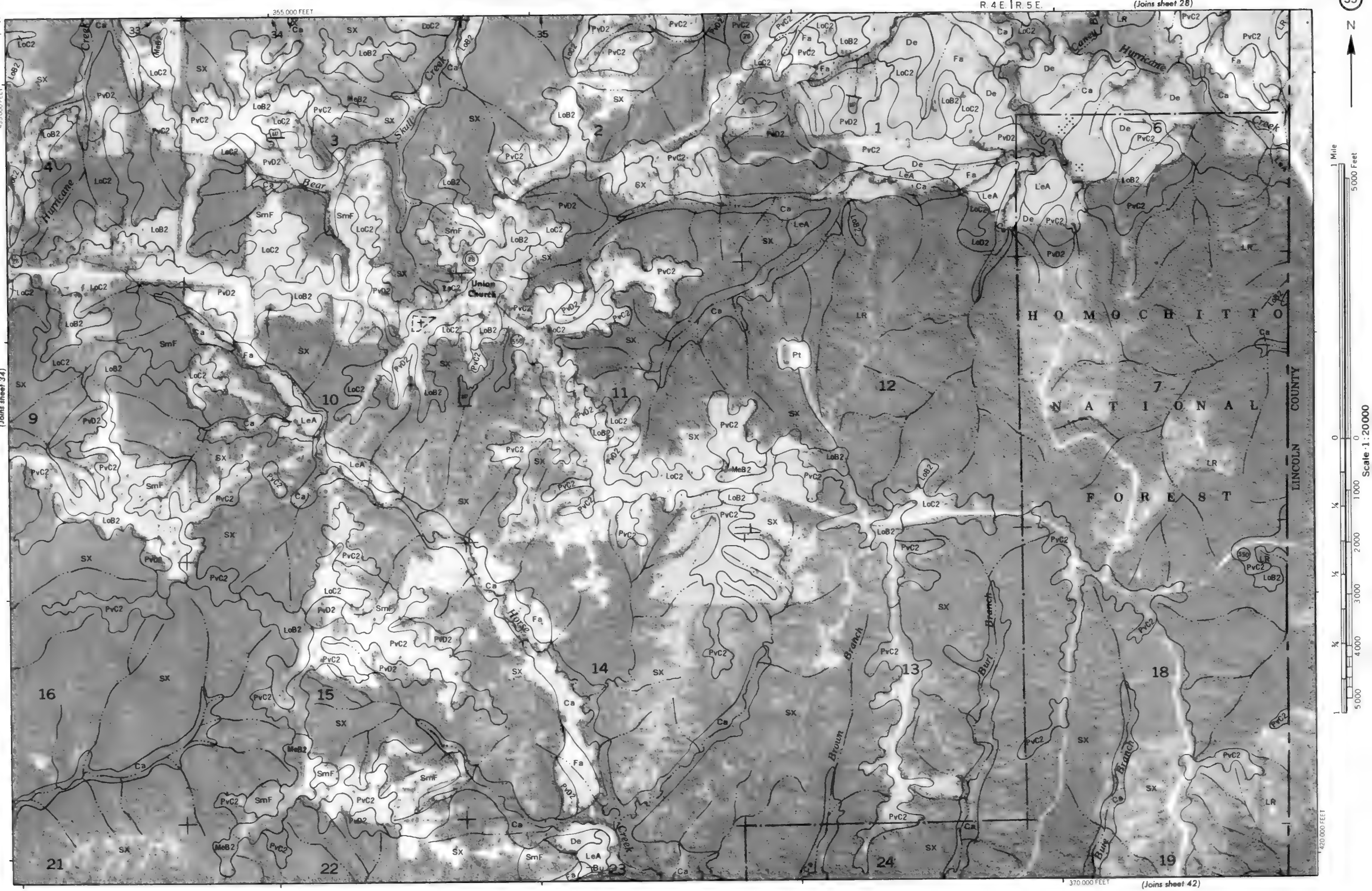

(Joins sheet 25)
R 2 E.
T. 8 N.
T. 9 N.
(Joins sheet 31)
(Joins sheet 33)
(Joins sheet 39)
N
1 Mile
5000 Feet
Scale 1:20000
Tower
Bolls
Branch
Gulf
Illinois


33
N
(Joins sheet 26)
(Joins sheet 32)
(Joins sheet 34)
(Joins sheet 40)
R. 2 E. | R. 3 E.
T. 8 N. | T. 9 N.
305 000 FEET
435 000 FEET
1 Mile
5000 Feet
Scale 1:20000
Frog
Tanyard
Branch
Branch
Gilchrist Creek
Branch
LR
SX
LoC2
LoB2
LeA
MeF3
Fa
De
Ca
Ro
PvD2
PvC2
MeD2
MeC2
MeB2
Bu
LoD2

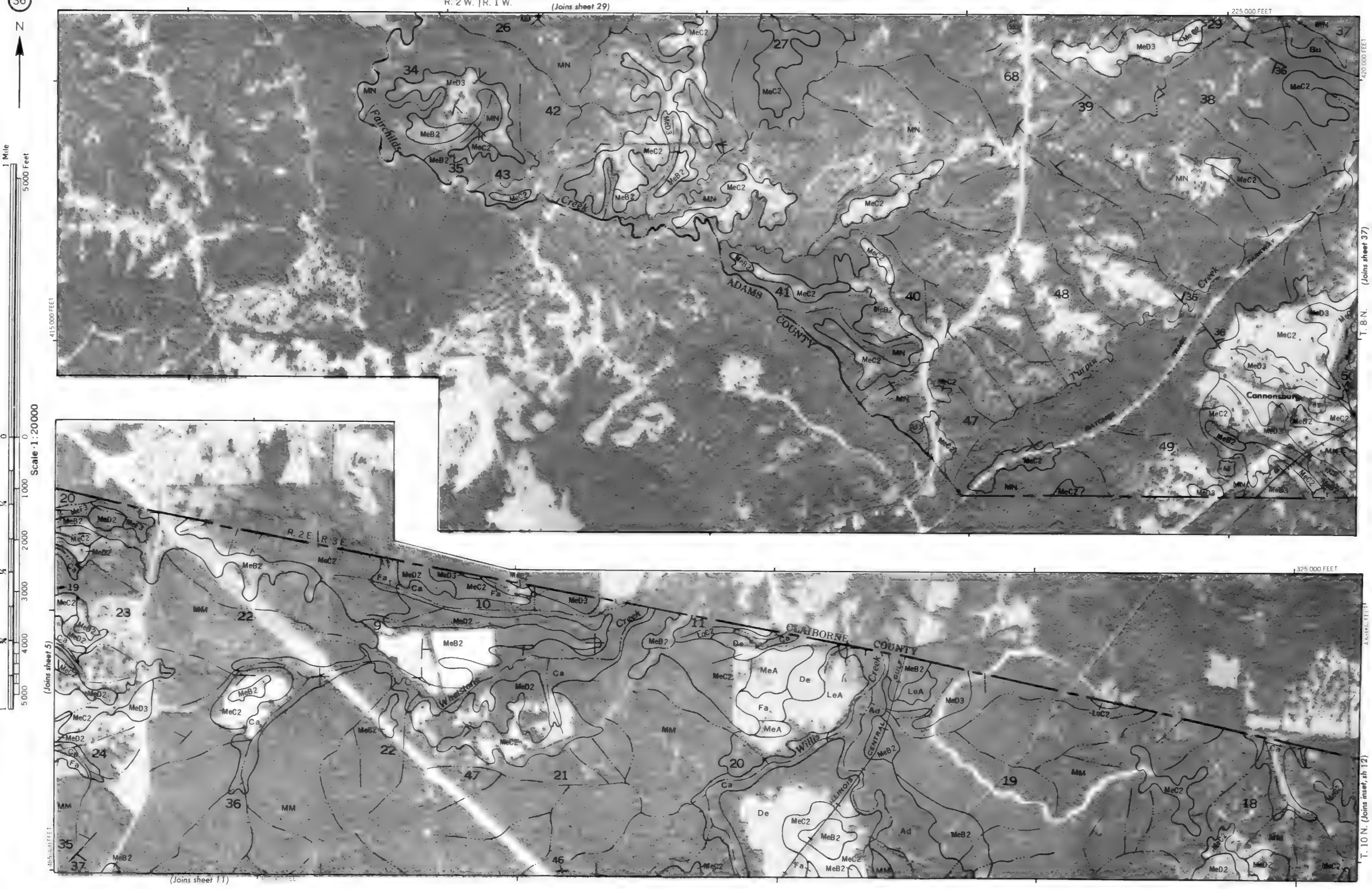
JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 34

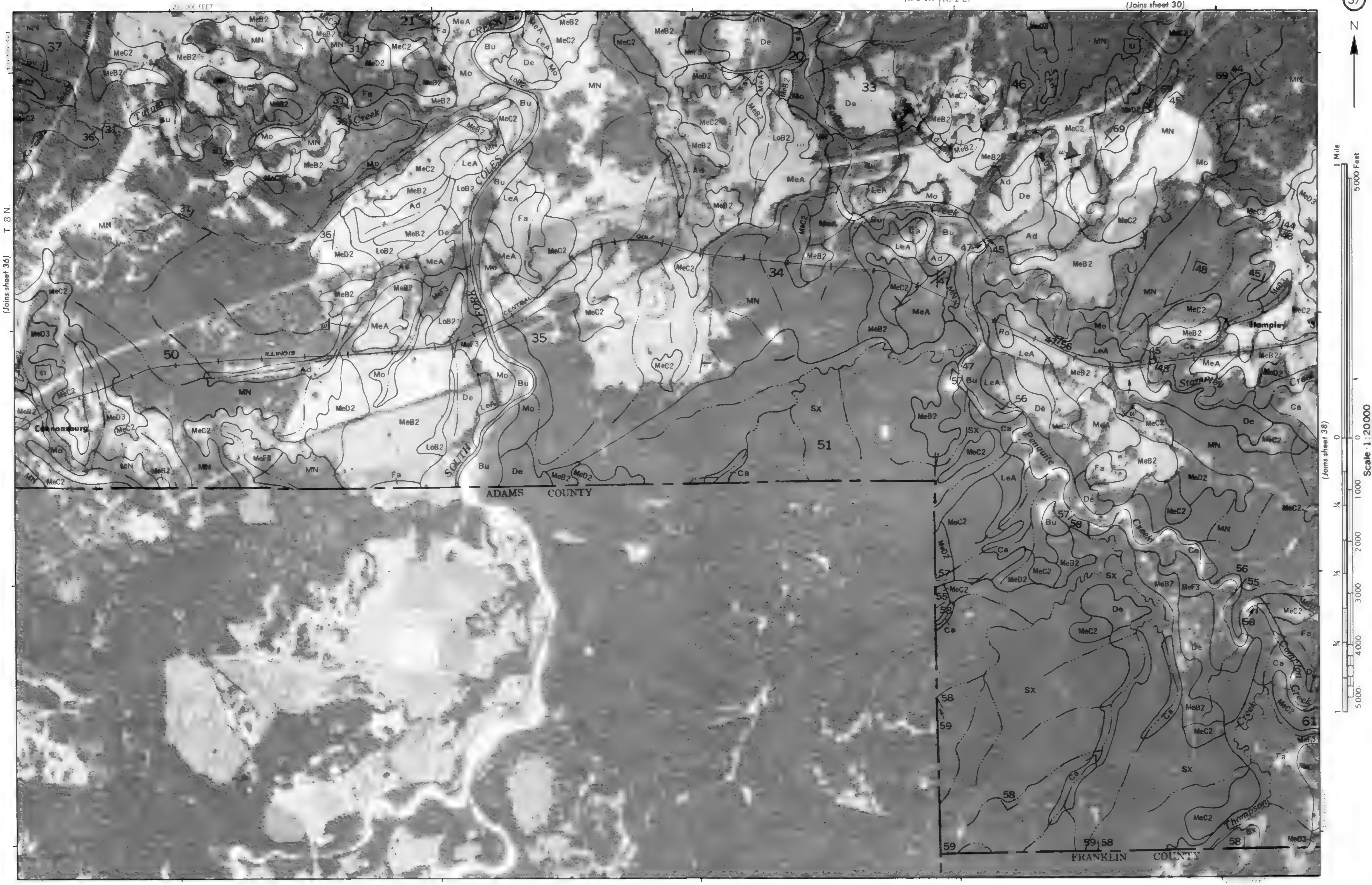


35


(Joins sheet 28)
(Joins sheet 34)
(Joins sheet 42)
T. 9 N.
T. 8 N.
R. 4 E. | R. 5 E.
355 000 FEET
435 000 FEET
370 000 FEET
420 000 FEET
N
Scale 1:20000
1 Mile
5000 Feet
HOMOCHITTO NATIONAL FOREST
LINCOLN COUNTY
Union Church
Hurricane
Creek
Skull Creek
Bear
Caney Br
Hurricane Creek
Horse
Brown Branch
Burl Branch
Bure Branch
1
2
3
4
6
7
9
10
11
12
13
14
15
16
18
19
21
22
23
24
33
34
35
SX
LoB2
LoC2
PvC2
PvD2
SmF
MeB2
Ca
De
Fa
LeA
LR
Pt
Bu

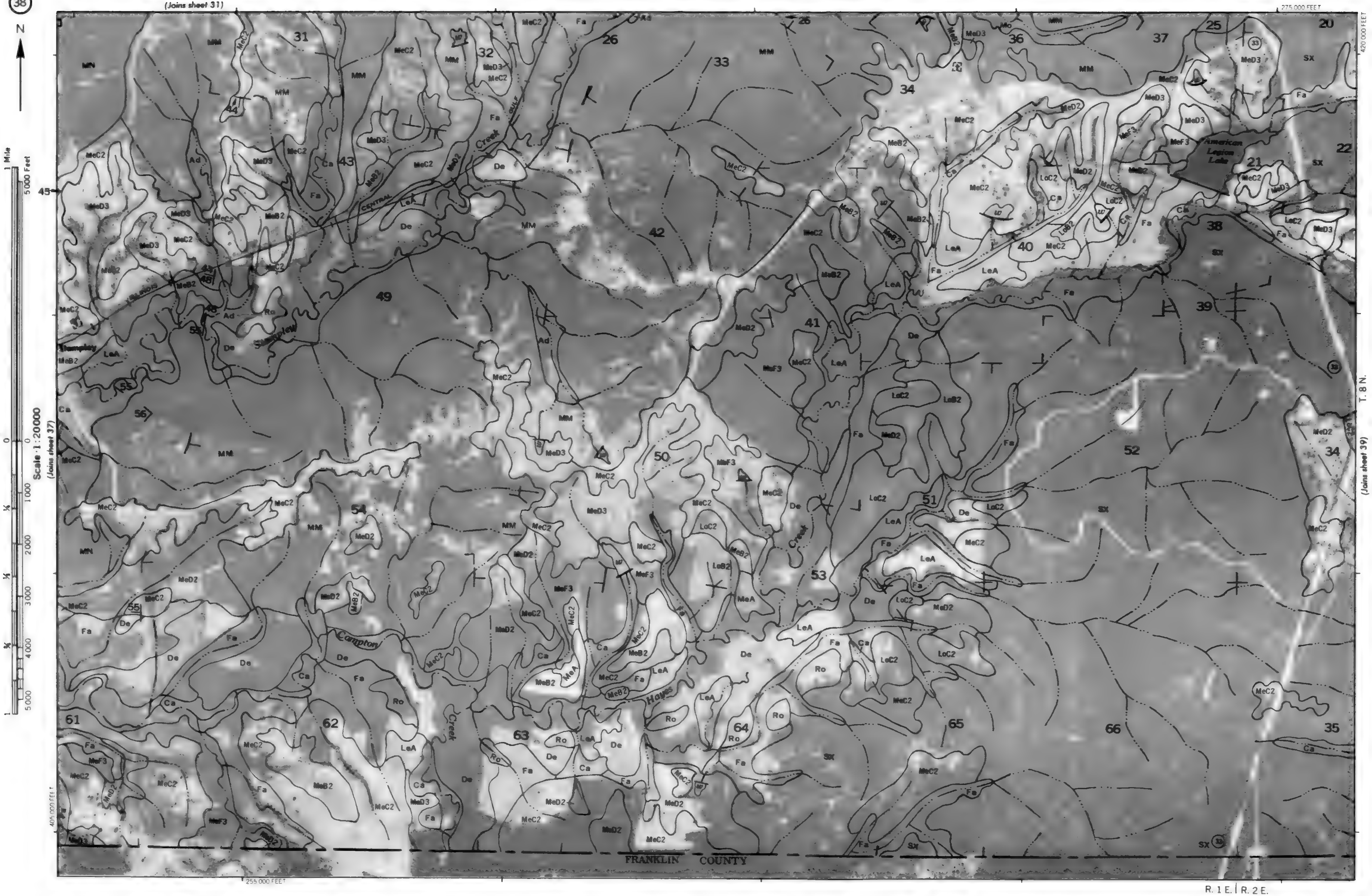
JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 36

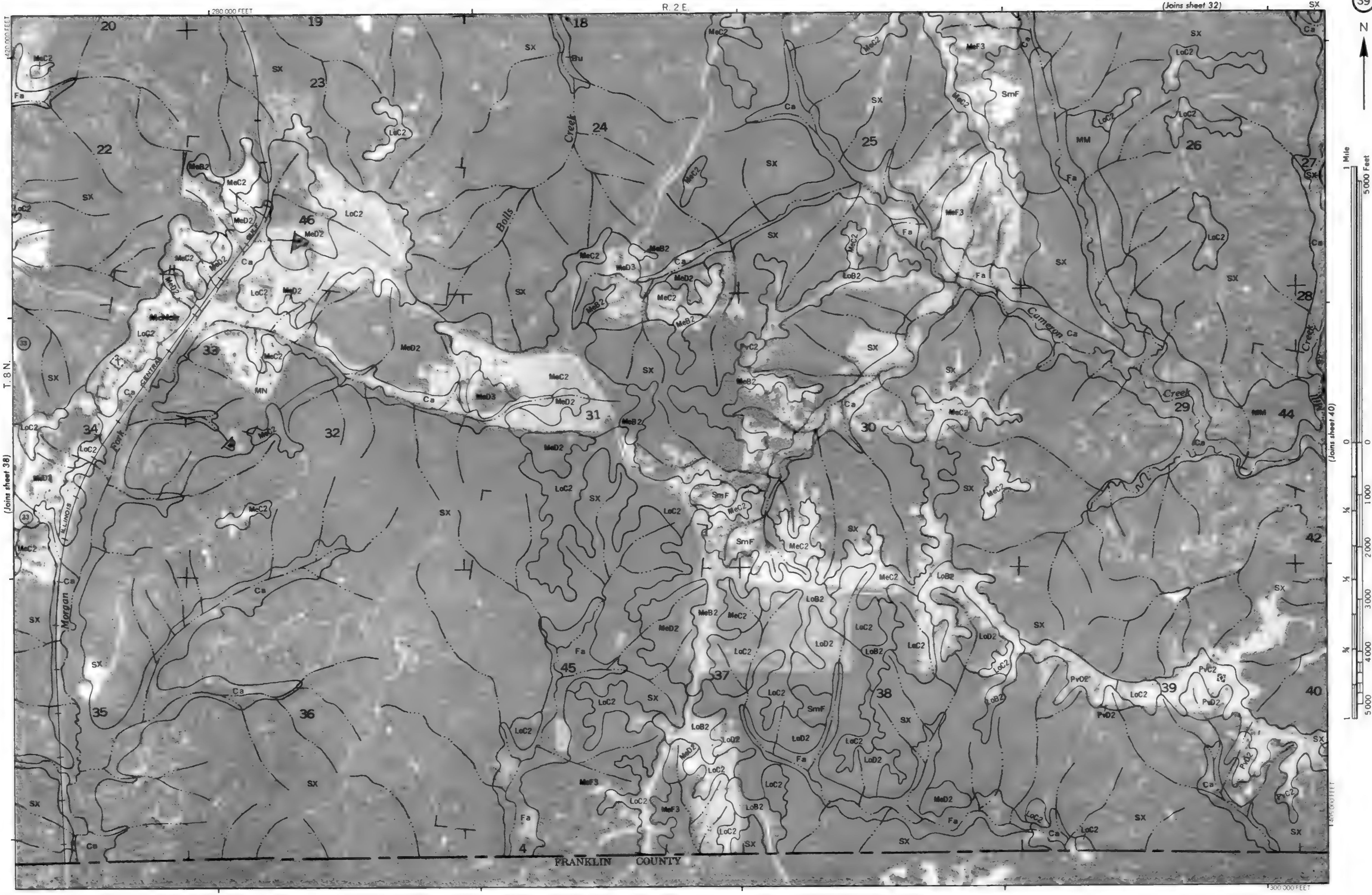


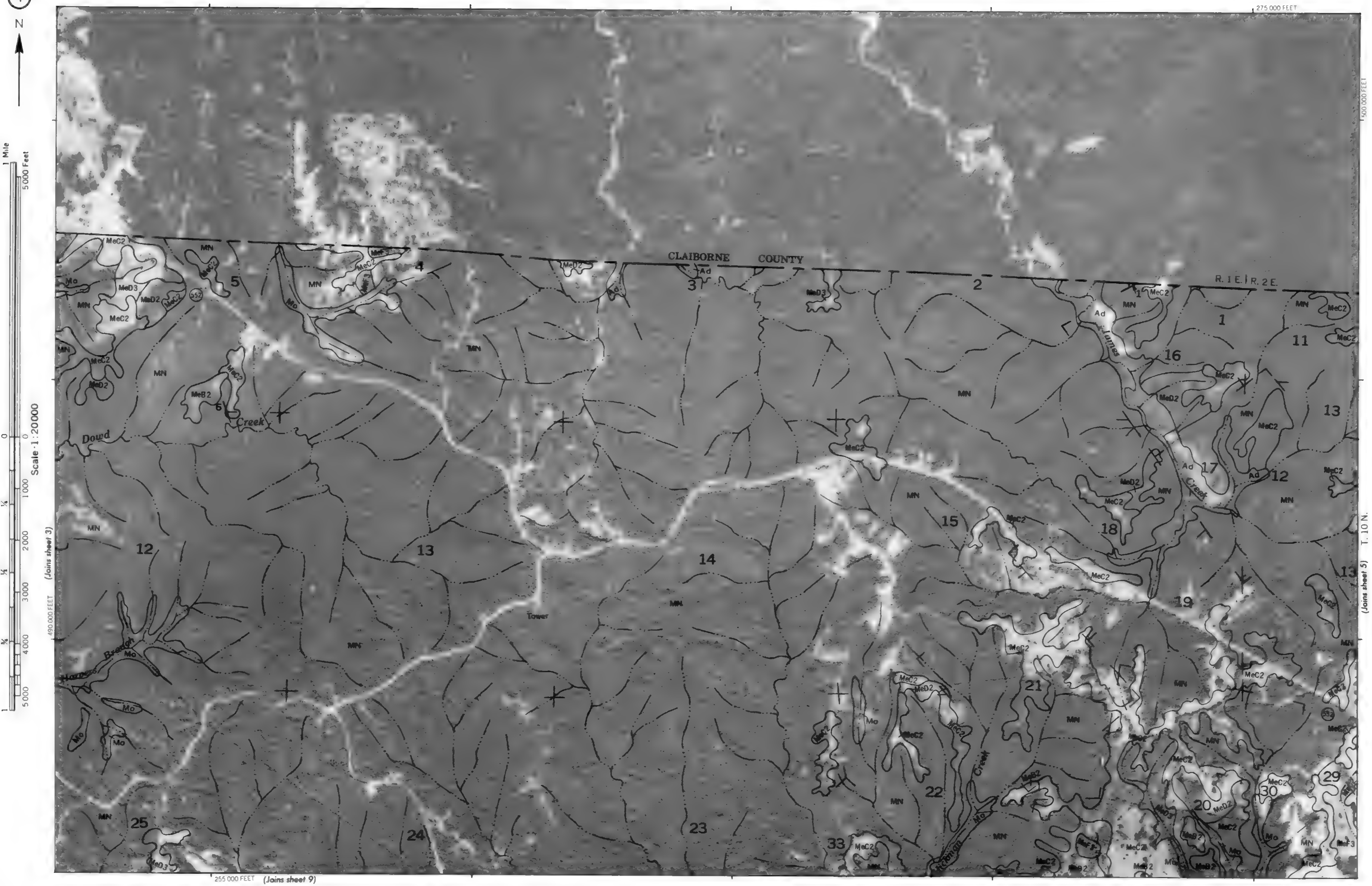


37
N
R. 1 W. | R. 1 E.
(Joins sheet 30)
(Joins sheet 36)
(Joins sheet 38)
T. 8 N.
23 000 FEET
Cannonsburg
Stampley
ADAMS COUNTY
FRANKLIN COUNTY
SOUTH FORK COLES CREEK
ILLINOIS CENTRAL GULF
Stampley Creek
Pennsylvania Creek
Thompson Creek
Turkey Creek
1 Mile
5000 Feet
Scale 1:20000

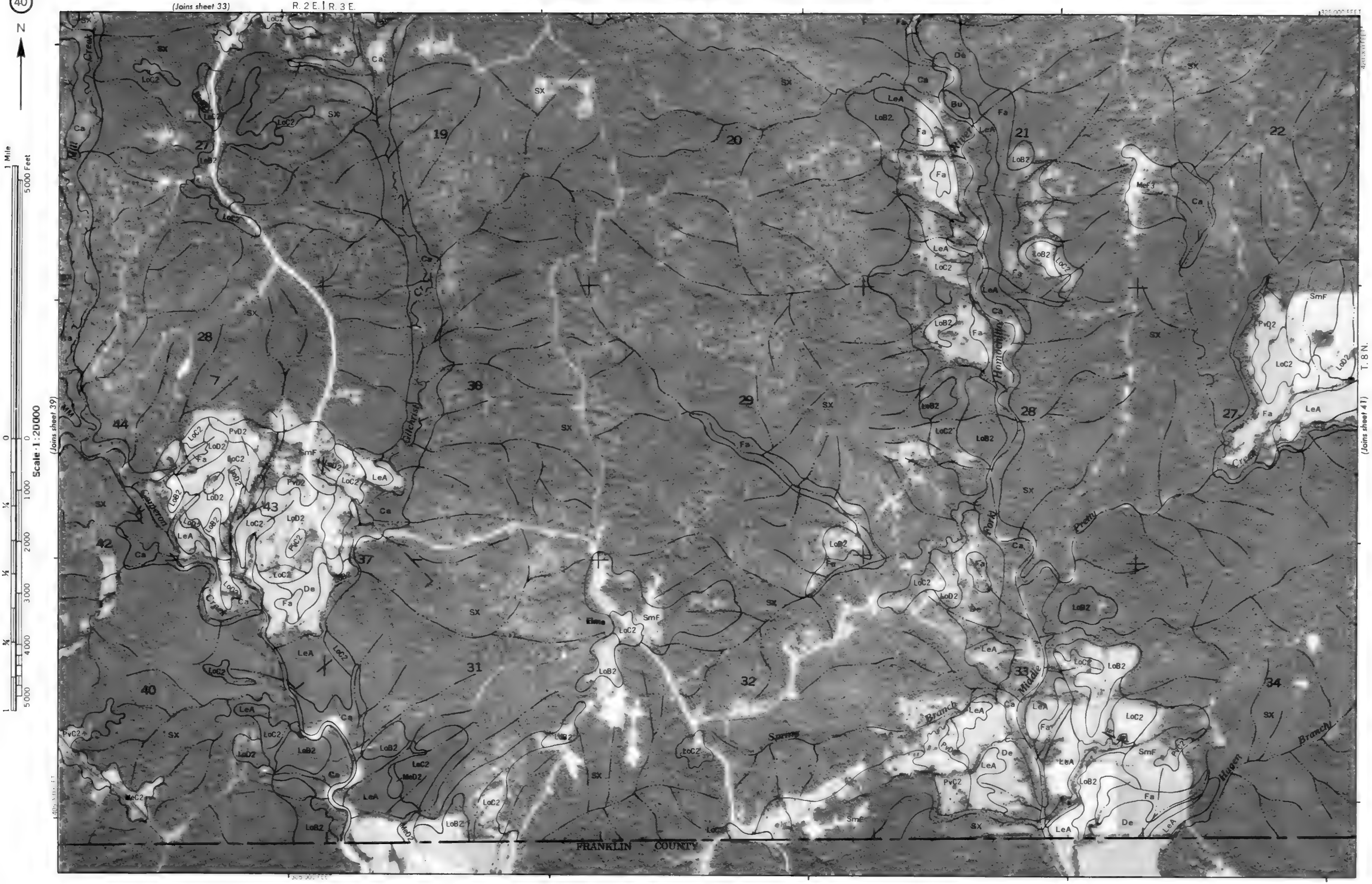
JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 38



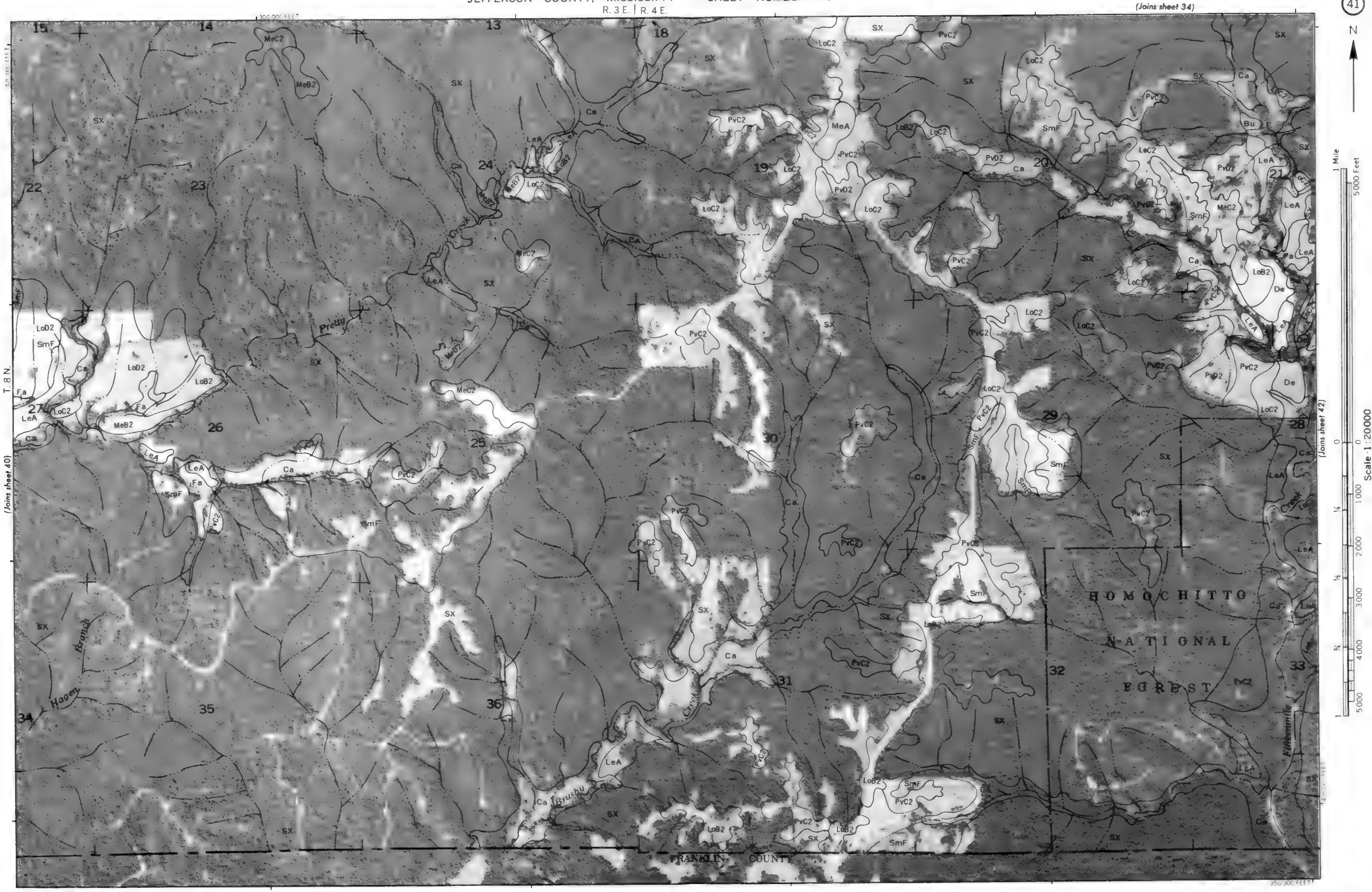

280 000 FEET
R. 2 E.
(Joins sheet 32)
420 000 FEET
T. 8 N.
(Joins sheet 38)
(Joins sheet 40)
300 000 FEET
FRANKLIN COUNTY
Bolls Creek
Cameron Creek
ILLINOIS CENTRAL
N
1 Mile
5000 Feet
Scale 1:20000
SX
Ca
Fa
MeC2
MeD2
MeB2
MeF3
LoC2
LoD2
LoB2
SmF
PvC2
PvD2
MM
MN
Bu

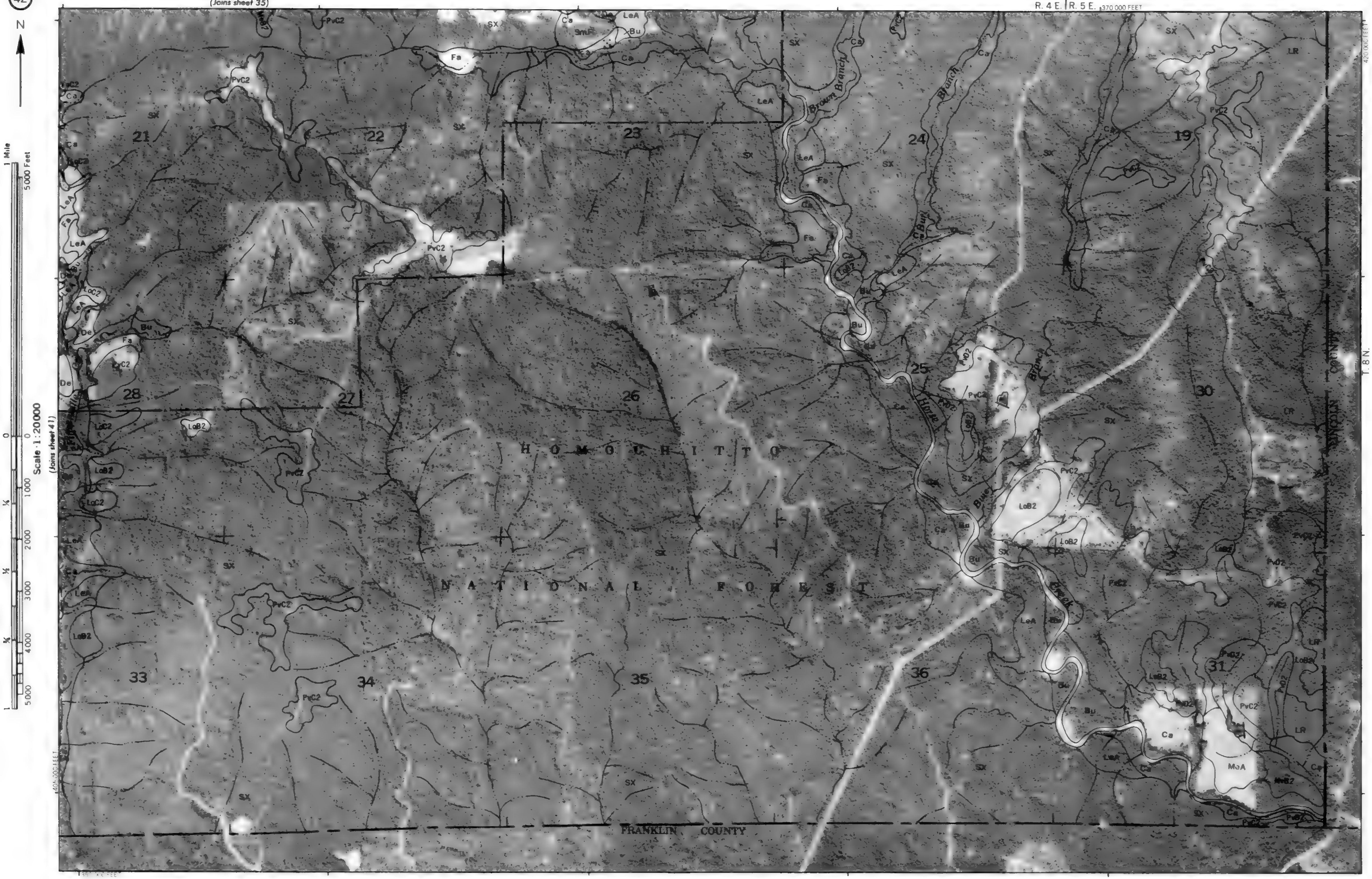

N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 3)
(Joins sheet 5)
(Joins sheet 9)
275 000 FEET
500 000 FEET
490 000 FEET
255 000 FEET
CLAIBORNE COUNTY
R. 1 E. | R. 2 E.
T. 10 N.
Dowd
Creek
Harpers Branch
James
Creek
Tower
Creek

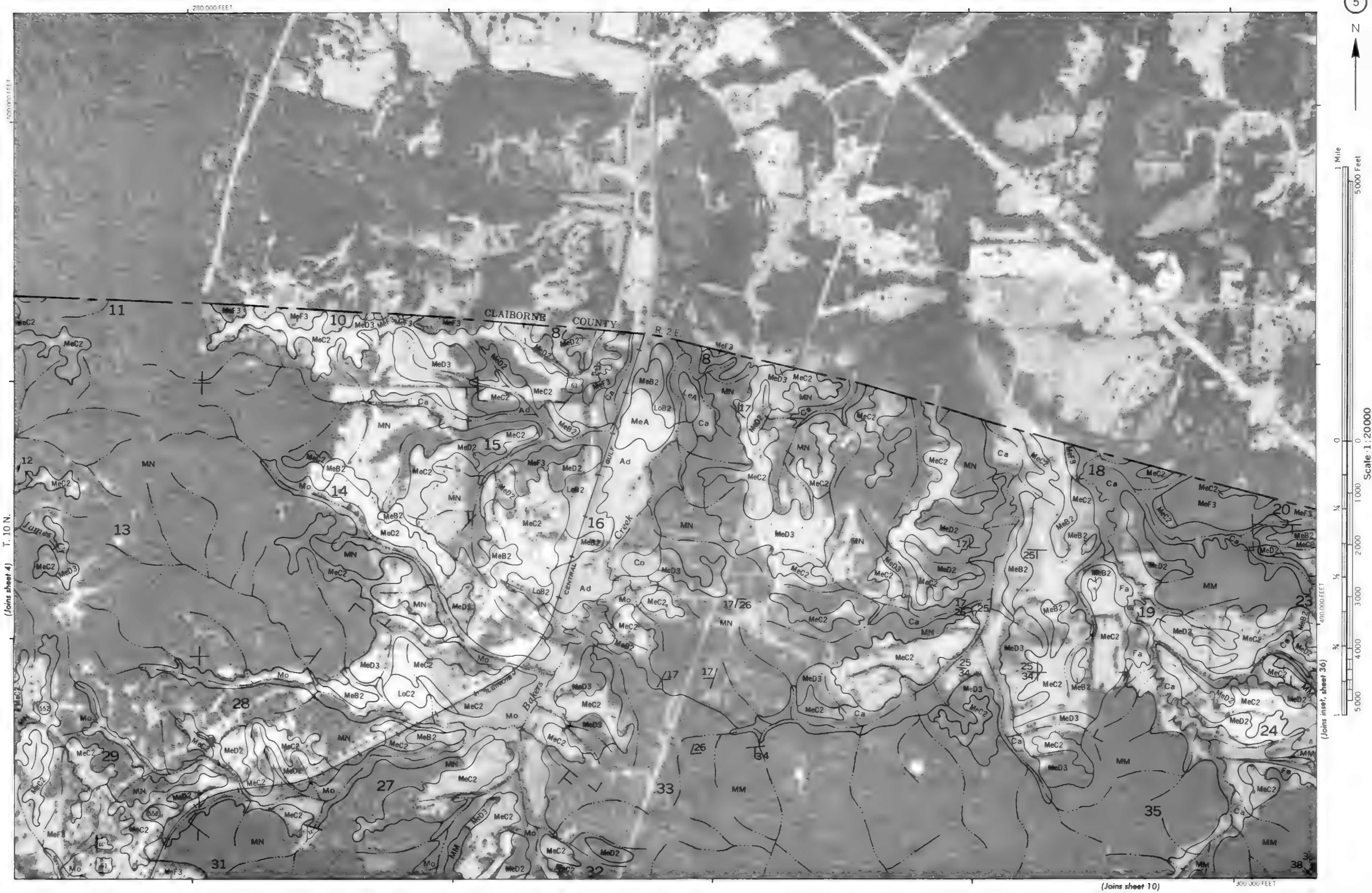
JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 40



JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 41

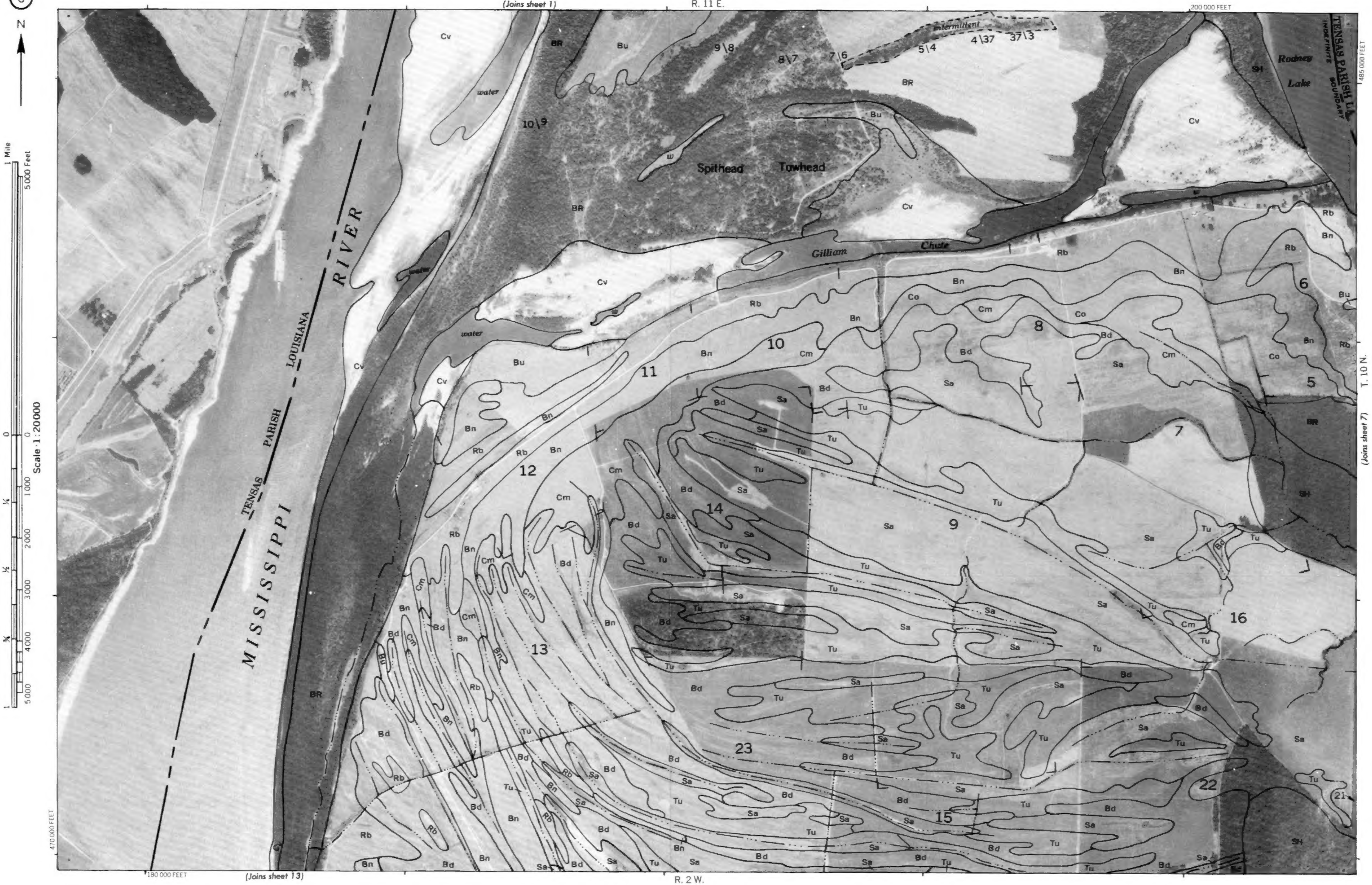



(Joins sheet 35)
(Joins sheet 41)
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
R. 4 E. | R. 5 E.
370 000 FEET
T. 8 N.
HOMOCHITTO
NATIONAL FOREST
FRANKLIN COUNTY
Brown Branch
Branch
Hurricane Creek
21
22
23
24
19
28
27
26
25
30
33
34
35
36
31
SX
PvC2
LeA
Ca
Fa
Bu
LoB2
LoC2
De
LR
MeA
MeB2


5
N
280 000 FEET
300 000 FEET
490 000 FEET
500 000 FEET
CLAIBORNE COUNTY
R. 2 E.
T. 10 N.
(Joins sheet 4)
(Joins sheet 10)
(Joins inset, sheet 36)
GULF CENTRAL
Bakers Creek
James
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
MN
MM
MeC2
MeD2
MeD3
MeF3
MeB2
MeA
LoB2
LoC2
Ca
Ad
Mo
Co
Fa
Le A

6

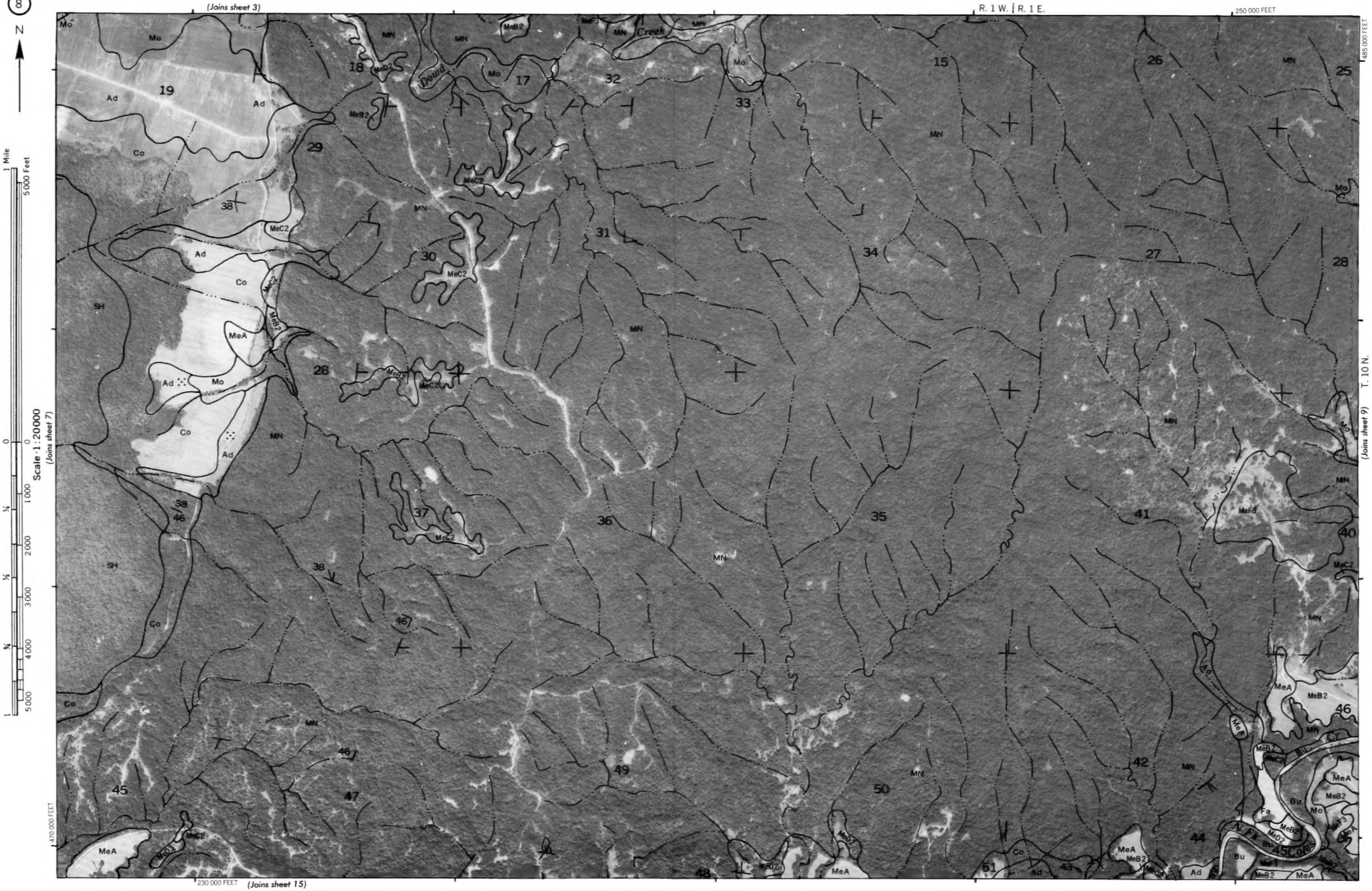
JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 6




7
N
205 000 FEET
485 000 FEET
(Joins sheet 2)
(Joins sheet 6)
(Joins sheet 8)
(Joins sheet 14)
225 000 FEET
470 000 FEET
T. 10 N.
R. 2 W. | R. 1 W.
Piazza Lake
Rodney Lake
Rodney Lake
LOUISIANA Bend
TENSAS PARISH
Rodney
Black Creek
COLES CREEK
1 Mile
5 000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
SH
BR
Co
Ad
Mo
Rb
Bn
Bu
Sa
MeA
MN
19
20
21
22
23
24
26
27
39
40
41
42
43
44
45
53
5
6
16
17
18

8

JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 8



JEFFERSON COUNTY, MISSISSIPPI — SHEET NUMBER 9